HOUSING DEFICITS IN FORMERLY EXCLUSIVELY INDIAN TOWNSHIPS IN SOUTH AFRICA: A CASE STUDY OF CHATSWORTH, KWAZULU NATAL

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ABSTRACT

In the 1950s, land was expropriated from many farmers in South Africa to create segregated townships based on racial classification. The apartheid government gave rise to the Group Areas Act of 1950, which created spatial segregation along racial lines in and around South Africa. As a result of this legislation, the township of Chatsworth was established exclusively for the Indian population. In accordance with the racial hierarchy that existed, there were differential service provisions and housing deficits. The major problems that existed in the Indian townships were overcrowding, lack of housing and poor service delivery. In post-apartheid South Africa, the government attempted to address these issues through the formation of social and development policies such as the White Paper on the Reconstruction and Development Programme (RDP)developed in 1994, the Growth, Employment and Redistribution (GEAR) strategy of 1996, and the National Development Plan (NDP) which was drafted in 2012, among others. Regardless of these post-apartheid initiatives implemented by the government to address the issues, large areas still experience the problem of a lack of housing and poor service delivery. This study seeks to understand whether the current ways of addressing housing deficits have been effective in the Indian neighbourhoods of Chatsworth, that were created on the basis of the apartheid (segregated) legislation. Globally, empirical studies have been used to distinguish the differences between what is provided and what is needed by citizens.

This is an essential tool used by both public and private sector to aid in satisfying the aspirations of the public. Residential satisfaction studies are useful and essential because they identify housing deficits in countries and outline specific housing needs of an area. They also assist planners in determining the extent of reconstruction of a residential area by using a residential assessment. They reveal not only the needs of the area's inhabitants but also the various other factors that influence overall household satisfaction levels. Studies have been based on three major theories: the housing needs theory, the housing deficit theory and the psychological construct theory. This empirical study of residential satisfaction was based on a household survey from representative settlement typologies in Chatsworth that focused on the areas of Bayview, Woodhurst and Crossmoor. The main aim of this study was to establish the nature and extent of housing deficits in the formerly segregated Indian township of Chatsworth, Durban. The type of research methodology that was used in the study is the mixed methods approach, which contains quantitative surveys of the sample population and qualitative open-ended interviews with the stakeholders of Chatsworth. The sample population comprised three of the oldest housing typologies. This includes 2-storey social housing, 3-storey council flats, and informal housing. The key findings derived from this research in terms of demographics showed that Chatsworth contains mostly Indian people and that a large number of the respondents were female. When there are more than two people in a household, dissatisfaction is likely to occur and most dissatisfaction in terms of household features came from the informal settlement. The research also found that these informal settlements have no proper access to water, ablution facilities or electricity. Although there were no major public facility issues, the cost of healthcare and education did raise a challenge. This research proposes an indigenous model that consists of seven steps to address housing related problems. The empirical findings acquired from the literature review as well as the surveys that were conducted has enabled the researcher to develop significant recommendations that would complement and address the housing challenges that are currently being experienced in Chatsworth.

DECLARATION OF ORIGINALITY

With this, I declare and confirm that: -

- I am the sole author of the written work herein;
- I have compiled the work in my own words and where other peoples` work has been used, their work has been acknowledged and referenced as per the University referencing guideline;
- I am aware that the work may be screened electronically for plagiarism; and
- this work has not been before submitted to any university.

_____	16.05.2023
Ms S. MATTHEW	DATE

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Contents

Abstract.....i

Declaration of originality.....ii

Acknowledgements.....iii

List of figures..... iv

List of tables..... v

List of appendices.....vi

List of abbreviations vii

1. Chapter One: Introduction and Background.....1

1.1. Background 1

1.2. Research problem 4

1.3. Aim and objectives..... 6

1.3.1. Aim 6

1.3.2. Sub-objectives 6

1.4. Research questions 6

1.4.1. Main question 6

1.4.2. Sub-questions 6

1.5. Definition of key terms 7

1.5.1. Dwelling unit 7

1.5.2. Housing 7

1.5.3. Housing backlog 7

1.5.4. Housing deficits..... 7

1.5.5. Household formation..... 8

1.5.6. Reconstruction and Development Programme (RDP) 8

1.5.7. Residential satisfaction..... 8

1.5.8. Township..... 8

1.5.9. Urbanisation 9

2. Chapter Tow: Conceptual and Theoretical Framework.....10

2.1 Introduction 11

2.2 Satisfaction..... 11

2.3 Housing..... 11

2.3.1 The role of housing policy 12

2.4 The shift from housing to human settlements 12

2.5 Towards sustainable development 13

2.6 Housing deficits 13
2.6.1 Housing deficits: A human rights and social development issue 14
2.7 Housing satisfaction/Residential satisfaction 15
2.8.1 The Housing Needs Theory 16
2.8.2 The Housing Deficit Theory 17
2.8.3 Psychological Construct Theory 17
2.8.4 Critiques of housing theories 18
2.9 Housing satisfaction conceptual models 18
2.9.1 Michelson's Integrated Model 1977 18
2.9.2 Onibokun's Habitability Model 1974 19
2.9.3 Housing Adjustment Model 20
2.9.4 Marans-Rogers Model 1975 21
2.9.5 Path Analysis Model 21
2.9.5 Francescato Model 22
2.10 Framework for residential satisfaction 23
2.11 Conclusion 24
3. Chapter Three: Local and Internal Precedents 25
3.1 Introduction 25
3.2 Housing characteristics 25
3.3 Neighbourhood characteristics 26
3.4 Socio-demographic characteristics 29
3.5 Behavioural characteristics 30
3.6 Residential satisfaction in the South African context 31
3.7 Conclusion 31
4. Chapter Four: Methodology 32
4.1 Introduction 32
4.2 Research design 33
4.3 The mixed methods approach 33
4.3.1 The quantitative component 34
4.3.2 The qualitative component 34
4.4 Sampling 36
4.5 Data analysis 41
4.6 Ethical consideration 41
4.7 Validity and reliability 42
4.8 Storage of data 42
5. Chapter Five: Analysis and Results 43

5.1 Introduction 43
5.2 Section 1: Respondents' profile 45
5.3 Section 2: Socio-demographic characteristics 47
5.4 Section 3: Dwelling unit features 50
5.5 Section 4: Housing support service 53
5.6 Section 5: Public facilities 55
5.7 Section 6: Neighbourhood facilities 56
5.8 Section 7: Social environment 56
5.9 Section 8: Behavioural characteristics 57
5.10 Section 9: Cross-tabulation between variables of interest 58
6. Chapter Six: Synopsis and Recommendations 65
6.1 Synopsis 66
6.2 Recommendations 69
6.3 Conclusion 71

LIST OF FIGURES

Figure 1: Apartheid zoning in eThekwini
Figure 2: Locality map of sample areas
Figure 3: The main constructs that influence mobility
Figure 4: Subsystems in the Onibokun Habitability Model
Figure 5: Summary of the Housing Adjustment Model
Figure 6: Empirical Path Analysis Model
Figure 7: Multi-faceted framework for study of residential satisfaction
Figure 8: Four paradigms of social research
Figure 9: Visual model of mixed methods design
Figure 10: Location of sample typologies
Figure 11: Bayview social housing project
Figure 12: Bayview housing typology
Figure 13: Woodhurst social housing project
Figure 14: Woodhurst housing typology
Figure 15: Crossmoor informal settlement
Figure 16: Crossmoor housing typology
Figure 17: Chatsworth in relation to Durban
Figure 18: Model for assessing and increasing housing and environmental satisfaction

LIST OF GRAPHS

Graph 1: Respondent suburb
Graph 2: Gender
Graph 3: Age groups
Graph 4: Ethnic groups
Graph 5: Head of household gender
Graph 6: Head of household age
Graph 7: Head of household monthly income
Graph 8: Type of household
Graph 9: Size of household
Graph 10: Number of incomes
Graph 11: Access to water

Graph 12: Satisfaction with access to water
Graph 13: Access to sanitation
Graph 14: Satisfaction with access to sanitation
Graph 15: Access to electricity
Graph 16: Satisfaction with access to electricity
Graph 17: Migration from household
Graph 18: Physical changes/adjustments to dwelling unit
Graph 19: Level of satisfaction with adjustments made

LIST OF TABLES

Table 1: Dwelling unit features
Table 2: Satisfaction with dwelling unit
Table 3: Satisfaction with public facilities
Table 4: Satisfaction with neighbourhood facilities
Table 5: Satisfaction with social environment
Table 6: Cross tabulation between variables of interest and suburb
Table 7: Cross tabulation between variables of interest and household type
Table 8: Cross tabulation between variables of interest and monthly income

LIST OF APPENDICES

Appendix 1: Residential Satisfaction survey (quantitative)
Appendix 2: Residential Satisfaction interviews with stakeholders

LIST OF ABBREVIATIONS

DOH	National Department of Health
DUT	Durban University of Technology
GEAR	Growth, Employment and Redistribution
NIC	Natal Indian Congress

NDP	National Development Plan
RDP	Reconstruction and Development Programme
SACN	South African Cities Network
UNICEF	United Nations International Children's Emergency Fun

1. Chapter 1: Introduction and background

1.1. Background

The term housing satisfaction was derived from a collection of research as an overall perception of what an individual may see at a specific moment as essential in their housing environment. The components of housing studies are heterogeneous due to this being an interdisciplinary field; however, they are often interrelated. Housing satisfaction is defined differently by different authors, depending on the theory upon which they base their research (Šiljeg, Marić and Cavric 2018). Mohit and Raja (2014) outline the underlying theories of residential satisfaction which are: Housing Needs Theory, the Housing Deficit Theory and the Psychological Construct Theory.

Since the industrial revolution, the world has been experiencing rapid industrialisation causing globalisation and urbanisation especially in developing countries. This rapid urban growth has been increasing the pressure on governments for service delivery and housing for various income groups. There are several factors that influence the overall quality of human life, and in this instance the quality of the urban environment is seen as a key contributor to human satisfaction (Bonaiuto and Fornara 2004). This is supported by Šiljeg et al. (2018), who explain that housing satisfaction is a key indicator of the quality of life because it affects all dimensions, from physical, economic, and social to psychological well-being. In other words, it can be defined as an interdisciplinary research area due to its complex nature, which substantiates why different professions use different approaches and models to explore and measure housing satisfaction.

Globally, residential satisfaction studies are used to distinguish the differences between what is provided and what is needed by citizens. Residential satisfaction as described by Bonaiuto and Fornara (2004) is an overall evaluation of an inhabitant's residential environment which includes an assessment of their house, building, private outside space, neighbourhood etc. Residential satisfaction studies are an essential tool used by both public and private sector to aid in satisfying the aspirations of the public (Mohit and Raja 2014:48). This is because such studies identify housing deficits in countries and outline the specific housing needs of an area. They also assist planners in determining the extent of reconstruction needed in a residential area, by using residential assessments. This reveals not only the needs of the area's inhabitants but also the various other factors that influence their overall household satisfaction levels (Amérigo and Aregones 1997).

Both developed and developing countries have adopted residential satisfaction studies to inform planners on how and what to build in a city. These studies also assist in communication between the citizens and the government. It is essential for a government to understand the level of satisfaction or dissatisfaction of residents in order to guide public policies and frameworks for housing (Mohit and Raja 2014). Internationally, studies have been used to inform policies and to guide solutions for housing deficits experienced by the citizens. In Malaysia, an assessment of residential satisfaction was done to identify deficits in the newly designed public low-cost housing. The study informed problems in the typology and proposed solutions (Mohit, Ibrahim and Rashid 2010). Chadbourne (2015) explains that Adelaide in South Australia used a study to measure residential satisfaction of their new programme of shrinking cities in high density residential areas. They found that lack of privacy and open space, as well as value for money, were components that reduced dwelling satisfaction. Bonaiuto and Fornara (2004) explain that residential satisfaction studies have also been used in Europe, the Middle East, Oceania, and South America to understand the relations among people and their neighbourhood.

The problem of housing has for decades been a challenge faced by both the developed and the developing world, and there are still large numbers of citizens experiencing unsatisfactory living conditions and appalling shelter deprivations, especially in developing countries. The critical concern for housing has put significant pressure on the South African government, which has led to the birth of numerous pieces of housing legislation. South Africa has seen the introduction of various programmes such as the Reconstruction and Development Programme (the RDP), the Growth, Employment and Redistribution Programme (GEAR) and Housing Acts among others (Manomano, Tanga and Tanyi 2016). However, the problems caused by separate development in the past has led to difficulties in achieving the full potential of these focused programmes (Sipungu and Nleya 2016). Having inherited consequences from the apartheid government, post-apartheid challenges consist of an escalating housing backlog from as early as 1994. In addition, South Africa's exceedingly high unemployment rate contributes to the citizens' inability to provide for their housing needs (Sipungu and Nleya 2016). Regardless of the government's continued efforts over the past two decades, South Africa continues to face deficiencies in service delivery, with housing deficits that continue to grow (People's Environment Planning 2016). Although objectives of the RDP and other housing programmes were to dispense housing and basic services to the citizens – which it did achieve to a certain extent – the satisfaction levels of these inhabitants are unknown. South Africa needs residential satisfaction studies to understand the relationship between people, their needs, and their areas in order to enhance their policies and frameworks around the needs of the public. Therefore, it is proposed that implementing these studies in less developed parts of a country will result in higher satisfaction levels and a finer quality of life (Manomano et al. 2016).

Locally, the eThekwini Municipality housing backlog currently stands at approximately 400 000 units, with a national household formation growth of 3% annually (eThekwini Municipality 2021). The Department of Human Settlements is responsible for facilitating sustainable development and for providing housing to beneficiaries. However, the city still faces deficits in housing and services (eThekwini Municipality 2019. Large townships such as Phoenix and Chatsworth were established in Durban as a result of the Group Areas Act (South Africa 1950) during the apartheid government era. The Act sought to separate racial groups by designating areas exclusively for certain races, segregating the population and placing people into designated townships. Chatsworth was established in the late 1960s as a township designated exclusively for the Indian population, who were moved from the areas where they lived initially. Chatsworth was developed in stages and each development was referred to as a unit. Presently, Chatsworth has become a mixed socio-economic area still containing pockets of areas experiencing poverty and unsatisfactory living conditions (Pillay 2009).

As a result of the Group Areas Act during the apartheid government era, therefore, large townships such as Chatsworth were segregated to become predominantly Indian areas. After the establishment of Chatsworth, the township experienced a housing scarcity as other races began to infiltrate the area. Over the years, the racial groups within Chatsworth had integrated to fit into one township (Pillay 2009).

Apartheid Zoning Map

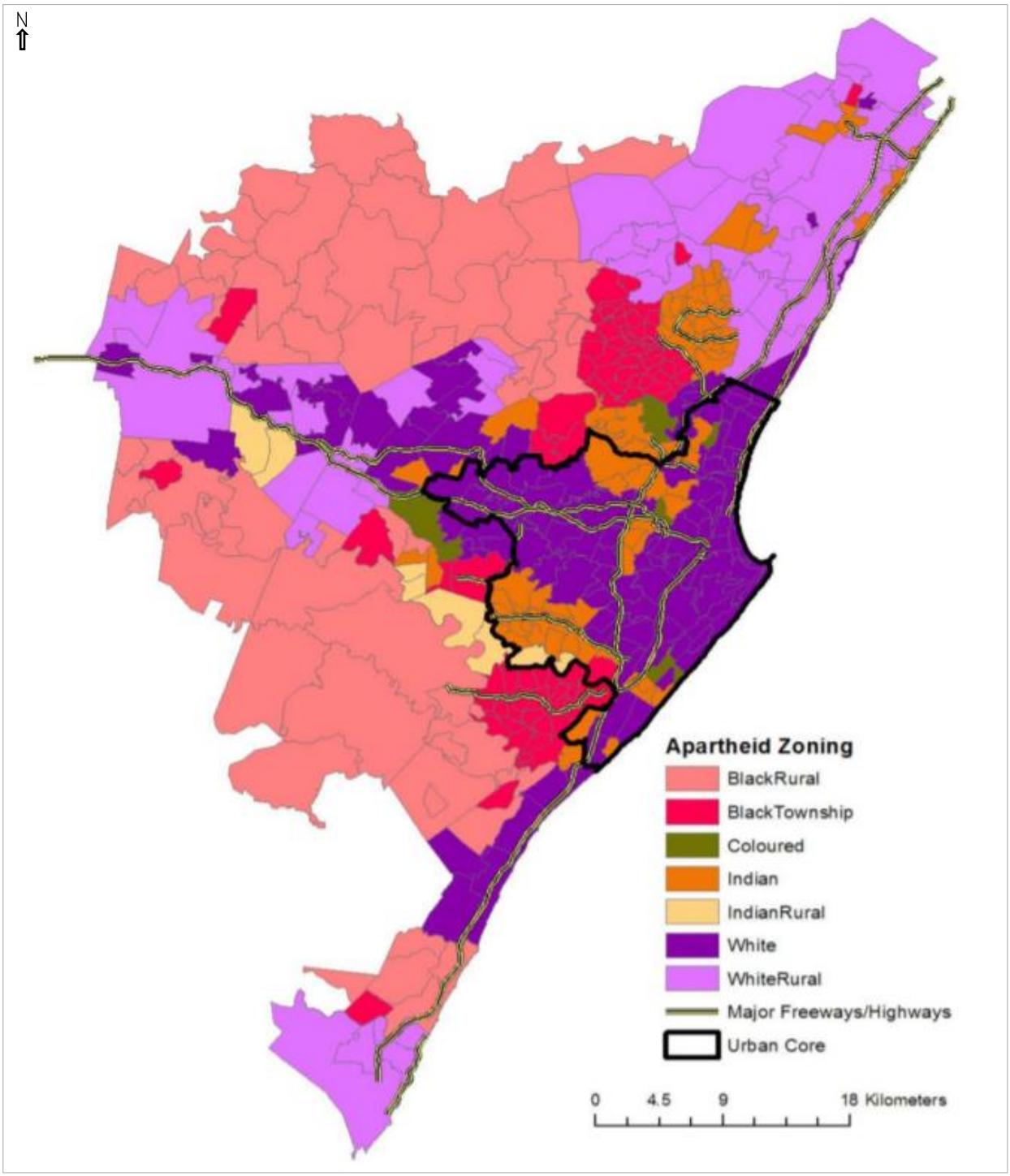


Figure 1: The Group Areas Act – Racial apartheid zoning in eThekwini Municipality (Schensul 2009)

1.2. Research problem

As mentioned above, Chatsworth has become a mixed socio-economic area consisting of pockets of areas experiencing poverty and unsatisfactory living conditions (Pillay 2009). Desai and Vahed (2013) assert that historically, Chatsworth was linked to the housing question which led to on-going community distress. Over the years, Chatsworth adopted various housing typologies which included council rental stock, single detached and semi-detached housing as well as informal settlements. Although the town was initially created exclusively for the Indian race, today there is a mixture of cultures and races residing therein.

Prior to the creation of Chatsworth, the local population had faced a mass shortage of housing mainly because the city council had decided to spend minimal resources on what they saw as an "alien" population. Historically, the Natal Indian Congress (NIC) had focused on non-cooperation and active resistance to the state. Other groups felt that the real problems, which included the lack of houses, water, education and health facilities, meant that the city council should provide some cooperation, although very little power and influence was granted to the Indian population. This created a dividing line between those who saw themselves as activists and those who were seen as collaborators, which created deep divisions within Chatsworth (Desai and Vahed 2013).

Currently, the eThekwini Municipality Human Settlements Department has proposed various housing projects for the area such as Lusaka, Bottlebrush, Lamontville Northwest, Bayview, Bayhead Site A, Bayhead Site B and Moorton Road Housing Project. The sole purpose of these projects is to provide new housing or to upgrade the current informal housing. However, there are still several informal settlements in the area, some of which include R.K. Khan, Crossmoor Road, Unity Avenue, Manyaleni, Mount Vernon, Bottlebrush overspill, and Bulbul Drive. According to Šiljeg et al. (2018), the existence of so many informal settlements in an area is evidence that there is still a great shortage of housing in the township. Presently, Chatsworth is facing the dual problem of an inadequate standard of infrastructure and a desperate need for housing.

According to Francescato, Weidemann and Anderson (1989), a residential satisfaction study of the area will measure the correlation between the satisfaction of tenants and the housing environment. Mostly, in less developed townships, there is no clear understanding of what people need in order to maintain their day to day lives. This often results in migration from the area. However, in lower income areas, people are too poor to move and remain in their respective homes while living in dissatisfaction. Mostly, their voices are not heard, and problems remain unsolved. In terms of quantitative versus qualitative aspects, it is not only about providing housing but about providing a house that can satisfy the needs of its inhabitants.

An assessment of residential satisfaction of the area will be used to identify the needs of this large population, and well as to point out current deficits experienced in the area. Possible solutions will be proposed for policy and future development of the township. The problem here is that the government and scholars are unaware of residential satisfaction levels because Chatsworth, as big an area as it is, is largely a forgotten community. There is no clear indication whether residents are satisfied with their current living situation or not. The housing and infrastructure provided by the government are old and deteriorating, which most likely contributes towards residential dissatisfaction. This study will assist planners to shift their focus to aspects that need more attention, and that will increase the residential satisfaction level.

Map of KwaZulu Natal

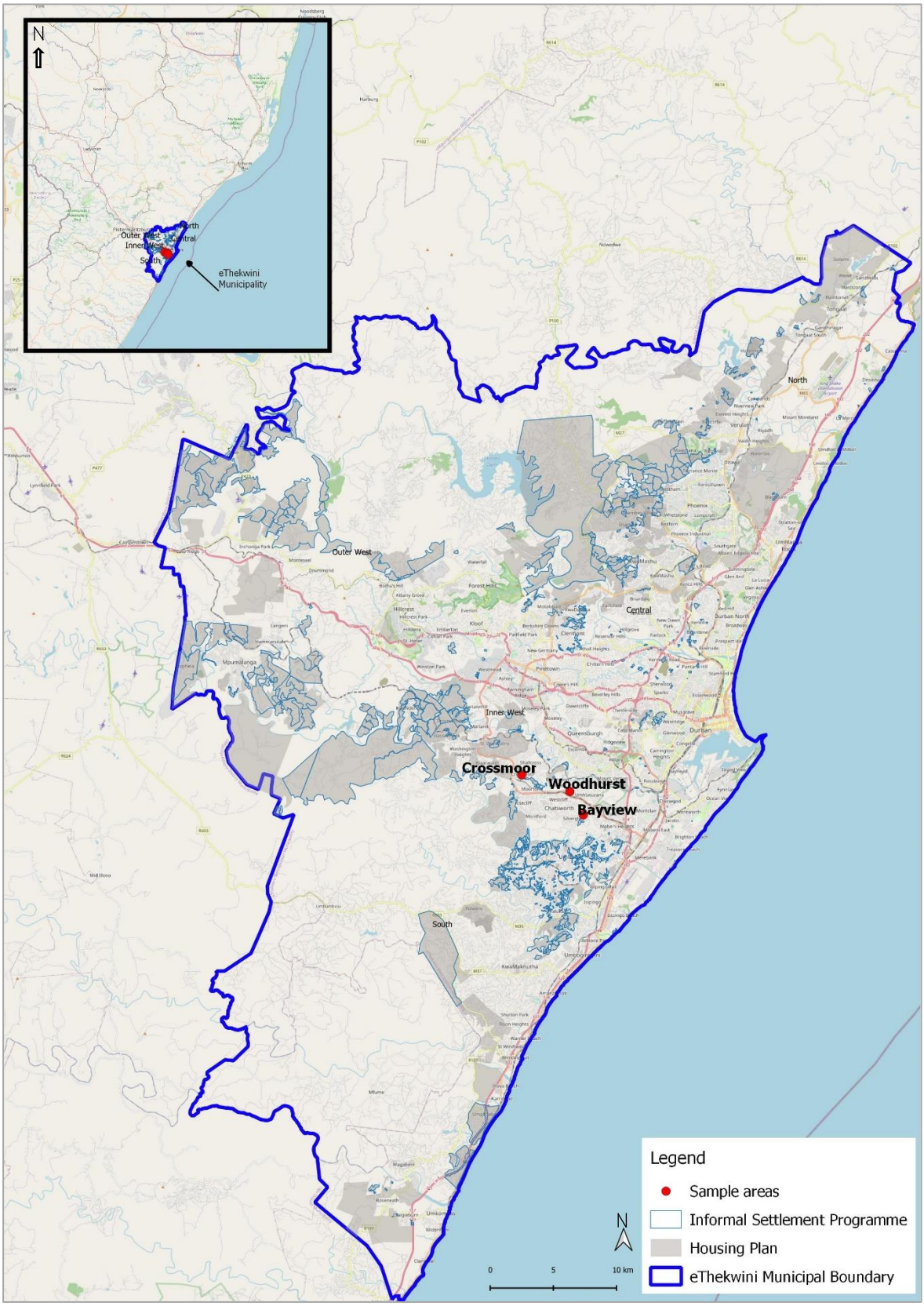


Figure 2: Locality map of sample areas

1.3. Aim and objectives

The aim and objectives of the research are outlined here in accordance with the research problem which is the lack of understanding of the satisfaction levels regarding housing in segregated Indian townships. The research is based in the suburb of Chatsworth.

1.3.1. Aim

The primary objective of the study is to investigate the intricate relationship between residents and their living spaces, surrounding neighbourhoods, and environmental amenities. Through comprehensive analysis, the study seeks to identify the factors that contribute to the residents' quality of life and well-being in these areas. Additionally, the study aims to identify housing deficits in these areas and propose feasible solutions to minimize them.

1.3.2. Sub-objectives

- To investigate the factors that influence the level of residential satisfaction with council rental stock, semi-detached and single detached housing, as well as informal settlements in Chatsworth.
- To identify housing deficits and present feasible solutions for addressing them.
- To identify the needs of the public and develop a model that closely aligns with these needs. The proposed model will be based on a comprehensive understanding of the factors that contribute to residential satisfaction and will prioritize the needs of the community.
- To determine the main and sub-factors that play a significant role in the residential satisfaction index. By analysing these factors, the study aims to develop a better understanding of the factors that contribute to residential satisfaction and to propose effective solutions for improving housing conditions.
- To evaluate the factors that contribute to housing deficits. By analysing these factors, the study aims to identify the root causes of housing deficits and to propose effective solutions for addressing them.

1.4. Research questions

1.4.1. Main question

The main research question is to determine what the housing deficits are that exist in the formerly exclusively Indian township of Chatsworth.

1.4.2. Sub-questions

The following sub-questions are posed to assist in determining situation in relation to housing in Chatsworth.

- How satisfied are inhabitants with their dwelling unit and environment?
- What factors directly impact residential satisfaction?
- What are the key drivers of migration from the neighbourhood?
- What are the needs of the beneficiaries, and how can their satisfaction be increased?
- What are the different housing typologies in Chatsworth, and which provides maximum satisfaction for residents?

1.5. Definition of key terms

1.5.1. Dwelling unit

A structure or part of a structure that is used for sleeping or as a home is known as a dwelling unit. It is often used by a person who maintains the households or by a family that lives and maintains it. In order to qualify as a dwelling unit, the structure must contain the four requisites with respect to facilities, namely, a sink which is used for cooking purposes, an entrance to the dwelling, at least one room and a toilet exclusively for the use of that dwelling and access to it that should not involve passing through other households. According to Stat Org (2021), dwelling types can be either owned houses or rented houses. Owned houses are those that are purchased, undergoing loan payments or are registered at a registration office. Rented houses are those owned by an individual or a municipal government and occupied by another. These can be for long or short-term leases (Stat Org 2021).

1.5.2. Housing

As a material object, a house can be perceived as something that can be demolished, manufactured, bought, sold or experienced. Housing is fundamentally regarded as a basic need to human life in order to protect one from environmental conditions (Ruonavaara 2018). According to Van Wyk (2009), a house is:

> …an instrument for political stability, economic prosperity, social welfare
> and household well-being and an economic, physical product – which requires various parallel and consecutive processes, services, suitable resources and relevant systems in order to create and maintain quality, sustainable living environments for human beings.

The term housing may more commonly use the term shelter regarding its main purpose in society. The perception of a shelter implies safety, security and privacy, a place that protects an individual from the elements of the outside world. Historically, homes were made from simple construction materials such as clay, wood or even thatch. However, over the years the idea of living in a house where generation after generation has been raised provides some sort of safety (CDC 2006).

1.5.3. Housing backlog

A housing backlog is a shortfall or under provision of housing that is accrued against previous development plan targets (Cornwall Government 2021). When the existing number of household units are subtracted from the required number of household units, the difference is known as the housing backlog. A backlog is regarded as a shortage and this shortage of housing is what increases the pressure on government service provision Winston et el. 2020). According to Saal (2022), South Africa's current housing backlog sits at an estimate of 2.6 million houses, with up to 12 million people who are in dire need of accommodation.

1.5.4. Housing deficits

A deficiency or lack in the number of houses needed to accommodate the population of an area is a housing deficit. The economic principles of supply and demand are followed in determining whether there is a shortage of housing. A surplus is created when the production of houses is higher than the demand, and a shortage is created when the production falls back on the demand. In most cases, land is not a challenge, it is the provision of housing that is a challenge According to Monkkonen (2013),

"…the term deficit, or shortage, implies that building more housing is the appropriate response", and "…a housing unit deficit can be estimated by calculating how many households formed at given ages in the past and applying these rates of household formation to the present demographic structure" (Monkkonen 2013).

1.5.5. Household formation

When new households are created over a period of time, this can be regarded as household formation. Based on projections of population by age cohort and age-specific headship rates, household formation is the underlying driver of long-term demand for new housing and thus new home construction. According to Kolko (2015), during a recession the household formation rates are extremely low; however, an improvement in the job market can positively influence the rate of household formation.

1.5.6. Reconstruction and Development Programme (RDP)

Following the elections in 1994, the Reconstruction and Development Programme became the primary socio-economic programme of South Africa. Its aim was to establish equality in society through the process of reconstruction and development.

> The RDP is an integrated, coherent socio-economic policy framework. It seeks to mobilise all our people and out country's resources toward the final eradication of apartheid and the building of democratic and non-racial future (O'Malley 1994).

1.5.7. Residential satisfaction

Residential satisfaction is a term used to describe when a person is happy and satisfied with their current housing situation which includes their dwelling unit, services and environmental situation. Mohit and Raja (2014) describe it to be a feeling of contentment with ones needs and desires. Furthermore,

> …residential satisfaction is recognised as an important component of an individual's general quality of life. Arguing that for most people, housing is the largest consumption item in their lifetime because the house when transformed to become a home is the setting where one finds refuge, rest and satisfaction (Aigbavboa and Thwala 2013a).

1.5.8. Township

A township is a piece of land or a portion of a country which is not completely isolated, but which can be seen as a unit of the local government. Pernegger and Godehart (2007) explains a township to be an area allocated to a specific race group located on the periphery of a city. These areas are characterised by informal settlements, not fully functional neighbourhoods, high unemployment and low household income. Townships are a South African invention inspired by colonial town planning and found nowadays in various other African cities. The intention of that planning was to have intentional spatial segregation between race groups.

> The term "township" has no formal definition but is commonly understood to refer to the underdeveloped, usually (but not only) urban, residential areas that during Apartheid were reserved for non-whites (Pernegger and Godehart 2007).

1.5.9. Urbanisation

Urbanisation can be defined as a gradual shift in population into urban areas from rural areas, this in turn causing population growth inside urban areas. According to Bhattacharya (2002), the permanent concentration of large numbers of people in a relatively small area is called urbanisation, and this in turn forms cities.

> Internal rural to urban migration means that people move from rural areas to urban areas. In this process the number of people living in cities increases compared with the number of people living in rural areas. Natural increase of urbanisation can occur if the natural population growth in the cities is higher than in the rural areas. This scenario, however, rarely occurs. A country is considered to urbanised when over 50 per cent of its population live in the urban areas (Long 1998).

1.6. Dissertation structure

The structure of this dissertation is arranged in such a way as to meet the objectives of the study. It is divided into six chapters. Chapter 1 provides an introduction and overview of the research study. It begins with the introduction and background to the topic, outlining the meaning and history of residential satisfaction and an overview of how it has been adopted more widely. This is followed by an outline of the main objectives and the research questions of the study, which in turn aim at focusing on the main research problem. The key terms are outlined and finally the structure of the dissertation is described.

Chapter 2 presents the conceptual and theoretical framework of the study. The key concepts of the term housing satisfaction and the underlying theories in relation to housing satisfaction are provided. This chapter outlines the role of housing policy along with the shift from housing to human settlements and moves towards sustainable development. The key theories are based on the main characteristics, namely demographics, physical features of the house, housing support services and public facilities. While exploring the key theories, the chapter also presents the housing satisfaction conceptual models that are integrated with residential satisfaction.

Chapter 3 outlines the use of residential satisfaction studies worldwide to examine various housing issues in both the developed and developing world. The local and international precedents are explored in Chapter 3, along with studies done on various types of housing to examine the level of satisfaction.

Chapter 4 describes the research design, outlines data collection, explains the nature of the mixed methods approach, the data analysis, sampling methods, ethical considerations, reliability and validity and storage of data. The inferential analysis research design used a random sample from the study area, using a mixed methods approach including both quantitative and qualitative data collections.

Chapter 5 presents the analysis and results of housing satisfaction levels from the selected case study area. It draws from the findings of a sample population of 491 households over three areas – Bayview, Woodhurst and Crossmoor. The main objective of this chapter is to analyse and draw up findings based on relationships between inhabitants, their dwelling units, the neighbourhood that surrounds them, and the environmental facilities that are provided. Alongside achieving the objective of the study, the hypothesis of housing deficits in formerly exclusively Indian townships was tested. This chapter uses inferential data analysis to examine households in order to understand the relationship between the

inhabitants, their dwelling units and the neighbourhood that surrounds them as well as identifying the deficits that are experienced.

Chapter 6 provides the overall synopsis, the conclusion and substantial recommendations that the research study has formed. During the process of this chapter, the researcher assesses whether the main research questions of the study have been answered and objectives have been met. The study provides an indigenous model that can be used to assess and understand the relationship between housing related problems and the level of service provision, which can then be used to strategically align policies and development goals, in order to maximise service delivery in targeted communities thus creating more sustainable human settlements.

2. Chapter 2: Conceptual and Theoretical Framework

2.1 Introduction

The focus of this chapter is to create a conceptual and theoretical framework for research based on residential satisfaction. This chapter introduces the key concepts which will be used to review the theoretical perspective of housing studies. The chapter also outlines the shift in South African policy from housing development to human settlements. There is emphasis not only on shelter provision but also on sustainable human settlements. This chapter also explains the major underlying theories of residential satisfaction as well as the conceptual models of housing satisfaction. Understanding housing theory is imperative because policy formulation and evaluation may lack reason and direction if there is no clear understanding of a theoretical basis. To formulate a useful housing theory, an understanding of the concept of housing practice and the nature of housing is essential (Aigbavboa and Thwala 2013b). However, it is questioned by Pugh (1986) whether the concept of housing can fit into a single theoretical framework in its essential nature. This chapter also explains the major underlying theories of residential satisfaction and it examines the housing satisfaction conceptual models.

2.2 Satisfaction

The concept of residential satisfaction is made up of both the terms housing (residential) and satisfaction. It is important to define these two terms separately in order to understand the concept of residential satisfaction. The term satisfaction, as described by Aigbavboa and Thwala (2013a), appears in relation to many fields such as employee satisfaction, patient satisfaction, visitor satisfactory and housing satisfaction, among others. The idea of satisfaction is likely to occur when a service or product is better than expected. On the other hand, dissatisfaction occurs when performance is worse than expected (Aigbavboa and Thwala 2013a). Kotler (1994) portrays satisfaction as an individual feeling of approval or disapproval resulting from comparing a perceived outcome in relation to the expectation. Satisfaction as described by Parker and Mathews (2001) is an evaluation between what is expected and what is received. Similarly, Campbell, Converse and Rogers (1976) describe satisfaction as a perceived discrepancy between aspiration and achievement. The concept of satisfaction is not only related to the physical aspects of an individual but also their social networks, environmental, housing and economic environments.

2.3 Housing

Housing can be conceptualised in various ways. One of the most common definitions is that of a shelter. However, housing can also be described as a worldwide social necessity of life, and it is regarded as one of the most important and basic needs of human life. Therefore, housing is a necessity required for both social and economic growth (Okeyinka 2014). A “house”, as described by Melnikas (1998), is a specific place where people or groups of people take shelter and can live their lives. Similarly, Macmillan Dictionary and Business Dictionary explain housing to be a building or structure where individuals or families live. From an economic perspective, housing is described to be a dwelling which is provided for people. Housing can also be defined as a commodity which is a tangible asset that has potential returns or as a fixed asset that is either owned or rented (Henilane 2016).

Agbola (1998) describes housing to be both a process and a product which influences the social, psychological, economic and cultural aspects of human life. Being a unit of the environment, housing has an influence on human health, social behaviour and satisfaction which is profound and affects the overall general welfare. The need for basic shelter in Third World countries has historically been a major problem especially post-industrialisation and continues to be an issue (Fisher, Fisher, Bryan and Misovich, 2002). Various countries face the problem of housing differently: some experience quantitative housing issues while others experience qualitative issues regarding their housing (Tsemberis 2010). Van Wyk (2009) explains housing to be an instrument used for political stability, economic prosperity and human well-being, which should help in creating a sustainable living environment for humans. It is essential to note that a housing system is a composition of the overall social and physical components. Housing does not necessarily mean an individual's dwelling unit only (Francescato et al. 1987). Shlay (1998) further states that the aspect of housing has a multidimensional nature including structural type, tenure, location and political jurisdiction.

Housing in general is a rather many-faceted topic. Various researchers and authors have contrasting views on the topic. As explained by O'Sullivan and Gibb (2006), housing is a difficult aspect to hypothesise about due to it being a multifaceted commodity. Lux (2003) also agrees that housing cannot be viewed from a single perspective. On one hand, housing is categorised as a basic human need, and on the other hand it constitutes a special type of private property. In the current world, housing research is crucial because it enlightens theorists about what is currently available as opposed to what should be there. Šiljeg et al. (2018:51) clarify that housing satisfaction plays a significant role as a key indicator of the quality of life that affects all dimensions, from physical, economic and social to psychological well-being. In other words, it can be defined as an interdisciplinary research area due to its complex nature, which substantiates why different professions use different approaches and models to explore and measure housing satisfaction.

2.3.1 The role of housing policy

The central debate in housing policy is whether the state should be a facilitator or a provider of housing. Dewaar (2007) argues that on the one hand the state is a facilitator of housing and on the other, it is a provider. Many countries around most parts of the world have moved away from state provision of housing mainly because of the frequent impossibility to sustain. The inability to provide housing is derived from the fact that developing countries have a huge housing demand. Also, the role of housing policy is not only to provide but to encourage households to take control of their housing situation, in terms of which they invest in capital stock that will benefit them in the future. Turner (1977) claims that regardless of the finance they invested, there is a continuing dissatisfaction of recipients regarding the quality of housing in most projects. As a result of this, there is a need to de-politicise housing in South Africa, as much as possible. The state is the primary developer of low-income housing, and this has become highly politicised, resulting in various negative consequences.

2.4 The shift from housing to human settlements

In South Africa, there has been a shift in housing delivery over the past two decades. The shift was made in 2004 from housing delivery to human settlements, which resulted in the responsible department being renamed the Department of Human Settlements. The emphasis has shifted from building houses to the provision of and access to resources and opportunities which foster active

public participation. In 1994, the White Paper on Housing was formulated as a policy for a housing programme to address the shortage in quality housing in the country. Its vision was to establish "viable, socially and economically integrated communities" with access to opportunities such as secure tenure and basic service provision. However, despite the substantial housing delivery until 2003, various criticisms had emerged. The underlying critiques of the policy were: the cost of the housing product, poor quality of housing, poor location and poor integration with other socioeconomic facilities. The most important critique of this housing programme was that the delivery of housing did not contribute towards the spatial and economic transformation of the city. This limitation of the policy led to the establishment of the Breaking New Ground Policy in 2004. This introduction embodied the most important shift from the Department of Housing to the delivery of Human Settlements, which reinforced spatial transformation and integration. The Breaking New Ground Policy sought to establish an equilibrium of economic growth and social establishment with key focuses on sustainable development, wealth creation, poverty alleviation and equity. The major objectives were accelerated housing delivery, the use of housing provision as a job creation strategy, social cohesion and ensuring equal access to property as an asset for wealth creation. However, after the Department of Human Settlements reviewed the BNG programme, they found that its focus was mainly on housing and shelter provision rather than on human settlements development (South African Cities Network 2014).
The major shifts in policy are listed below:

- **From houses to neighbourhoods and communities** – The intention of this shift was to address South Africa's fragmentation in cities with an aim to provide integrated neighbourhoods.
- **From top structure to services** – Basic services such as water, sanitation and electricity were identified as essential to maintain livelihood in communities. This shift to services is linked to the issue of sustainability which requires opportunities and resources for individuals that will assist in maintaining livelihood.
- **From shelter to asset** – One of the components of the Breaking New Ground Programme is that anyone should have access to property for wealth creation and empowerment. This is to promote housing not only as a shelter but as a resource that will assist in livelihood (DOH 2004).
- **From quantity to quality** – Recent policy shifts suggest that quality now plays a significant role in housing provision (South African Cities Network 2014).

2.5 Towards sustainable development

Due to the post-apartheid spatial challenges, the current development goals such as transformation of the built environment and the role of space should come first. It is essential for human settlements to provide effective responses towards this fragmentation that will facilitate sustainable growth for the future. This would require human settlements to be understood as a broader image that focuses on restructuring the built environment which includes higher density housing situated in well located areas and major public transport improvements to reconnect previously fragmented areas and also higher employment levels in previously disadvantaged areas (South African Cities Network 2014).

2.6 Housing deficits

The provision of shelter is one of the basic human needs for survival along with food and clothing; however, due to the nature and characteristics of developing countries around the world, the provision of shelter has a low level of importance. This is mainly because different communities have

different needs. Housing can be regarded as one of the more important rights since it is attached to an idea that embraces social services, allowing one to be part of a community or neighbourhood creating a liveable environment. From an economic perspective, housing has always been a sub-sector in the economy and is a critical factor when tackling poverty, social stabilisation and economic growth. Many countries around the world are committed to providing more housing or improving the current housing situation of their citizens with the intention of increasing the standard of living in areas that are lacking in housing. However, the gap between intentions and achievements continues to widen in both rural and urban areas as a result of the increase in population and the rapid rate of urbanisation. Regardless of the various housing schemes that governments have implemented to lower the shortage in housing, the annual housing shortage rate remains a problem (Afrane, Bujang, Liman and Kasim 2016).

The term housing deficits, or more commonly, housing shortage, is regarded as a deficiency or lack in the number of houses needed to accommodate the number of people in an area. Although Monkkonen (2013) explains that having a deficit means that there is a shortage of housing, the term can be ambiguous, with its ambiguous nature coming from the two ways of approaching the situation: either quantitatively or qualitatively. In order to understand the term housing deficits, it is essential to make the distinctions between its qualitative and quantitative nature since both components depend on normative assumptions which include an ideal standard of living or a comfortable household size. The qualitative component of housing deficits focuses on the quality of houses that are built. This component is much less problematic when dealing with housing deficits, because once a normative decision is made based on the minimum housing quality, then the only thing left is to estimate how many houses fall below this standard. The quantitative component, however, is more complicated to calculate because this involves a normative decision about how many should live in one household whilst including the relationship of the past and present household formation (Monkkonen 2013).

2.6.1 Housing deficits: A human rights and social development issue

In most African countries, the topic of shelter is included in its Constitution along with food which is known to be a basic need. One of the goals of sustainable development is to provide and maintain a safe, inclusive, resilient and sustainable environment (Bah, Faye and Geh 2018). It is clearly established by Doling, Vandenberg and Tolentino (2013) that there are links between housing conditions and social outcomes. Such social outcomes include social belonging, education, health, social security, and living conditions. Bah et al. (2018) have analysed data from demographic and health surveys in Africa that indicate a correlation between the percentage of people living in poor quality housing and the child mortality rate. Poor housing conditions including poor sanitation can lead to the occurrence of various waterborne and respiratory diseases as well as a higher child mortality rate.

In many developing countries, the housing deficit is used as a starting point for housing policies, from which programmes are devised to deal with the sometimes massive shortages. There is no doubt that countries which are experiencing rapid urbanisation have a shortfall of housing, thus experiencing a greater overall housing deficit. Due to the increasing urbanisation and population growth within inner cities, housing deficits in developing countries continue to grow since more people require more housing, especially within inner city areas. These residents either crowd into current housing or create their own housing, which is usually of poor quality and which results in the growth of informal

settlements and urban sprawl (Obeng-Odoom, 2010). In these rapidly changing countries, the quantitative component of the housing deficit is more problematic since the main aim is to cater for the fast-growing population. However, Monkkonen (2013) argues that there is a connection between the housing sector and changes in the demographics of families, which are drivers of changing household formation rates. This connection is essential and needs to be considered. Although Monkkonen (2013) explains the quantitative and qualitative components of housing deficits, it is essential to remember that apparent housing deficits can be caused by several factors beyond inelastic supply.

2.6.2 Housing deficits: A challenge for structural transformation

According to Bah et al. (2018), the rapid urbanisation and lack of planning has resulted in a huge housing deficit in various developing countries. Urbanisation is the rapid population growth within cities and as Pacione (2003) describes, is a result of three factors, namely: migration, natural increase and reclassification of rural settlements. This rapid urbanisation which is causing growth is also causing the urban planning sector to fall behind (Bah et al. 2018). Dasgupta et al. (2014) explains that the rapid pace at which urbanisation is occurring has stretched the capacity of countries to finance the outlays required to provide basic services such as housing and infrastructure. In many cities, plans are drawn up for future development and service provision taking into consideration the population growth. However, governments do not have the capacity to satisfy the needs of all their residents (Bah et al. 2018). In Africa, the housing backlog expands every year due to the population growth. Deficits are measured over a timeline such as annually; however, without a regular census of dwellings, accurate information regarding the progress of the solutions cannot be available. In Africa there are 17 countries that have a housing deficit estimated at more than one million units and growing. The major consequences of this rapid urbanisation and inadequate urban planning are increased pressure on current infrastructure speeding its deterioration, a demand on governments for more resources, a rapidly growing housing deficit which results in slum formation, urban sprawl, loss of agricultural land and the severe constraining of Africa's structural transformation (Bah et al. 2018).

2.7 Housing satisfaction/Residential satisfaction

The term housing satisfaction has been derived from a collection of research as an overall perception of what an individual may see at a specific moment as essential in their housing environment. The components of housing studies are heterogeneous due to this being an interdisciplinary field; however, these components are often interrelated. Housing satisfaction is defined differently by different authors, depending on the theory upon which they base their research (Šiljeg et al. 2018:53). Lawrence (1995:1659), for example, states that the concept of housing is neither static nor absolute. Buckenberger (2012) confirms this by explaining that housing satisfaction differs according to the country and its groups of people. However, it is strongly visible that satisfaction levels are increased with a higher physical quality of buildings.

The concept of housing can be justified as a key health resource which makes it an essential need in the overall sustainability of human life. Housing satisfaction is regarded as one of the core elements in an individual's quality of life. Therefore, the term housing satisfaction is the result of a subjective evaluation of the degree to which housing needs are met (Wilson et al. 2018). As mentioned, satisfaction as described by Parker and Mathews (2001) is an evaluation between what is received and what is expected. Mohit and Raja (2014) describe it to be a feeling of contentment with one's needs

and desires, which is also a subjective response to an objective environment. Residential satisfaction is achieved when one is content with one's dwelling unit as well as with one's environment. The rapid urban growth rate has created a greater demand for housing, more than ever before, and although governments strive to provide these units, in most cases satisfaction levels are low.

Aigbavboa and Thwala (2013b) also describes residential satisfaction to be an important component in an individual's overall quality of life. He argues that housing is one of the largest consumption items in human life since it is a place where one finds refuge as well as rest and satisfaction. Due to the rapid urbanisation caused by globalisation, most developing countries are facing challenges in providing sustainable housing to the low-income groups. Kearns (1992) describes housing satisfaction to have a complex attitude which not only includes an assessment of an individual's dwelling unit but also their environment and other aspects that influence their dwelling. In most cases residential satisfaction is achieved when a resident is content with their living situation. On the other hand, dissatisfaction occurs when the current situation does not meet the basic needs of the individual.

2.8 Housing theories

To comprehend household deficits, an understanding of the concept and determinants of household formation is essential. Monkkonen (2013) has identified two categories of household formation determinants that are emphasised by scholars. The first category is based on decisions to form new households according to work and consumption. The second category has its focus of socio-cultural influences on household formation. Monkkonen (2013) also affirms that cultural norms have a fundamental influence on family structure.

Ogu (2002) further that an assessment of the urban and residential quality can be done using two distinct approaches available in literature, which include the economic and the non-economic measures of quality respectively. Economic approaches normally consist of neo-classical and microeconomic trade-off models, while on the other hand, non-economic approaches include techniques which measure the degree of a resident's satisfaction and housing. In order to evaluate the condition of a housing unit and environment, normative techniques are also present. The underlying theories of residential satisfaction are all connected by a notion that residential satisfaction identifies the differences between actual and desired housing situations. Residential satisfaction can be explained by three major underlying theories: the Housing Needs Theory, the Housing Deficit Theory and the Psychological Construct Theory (Mohit and Raja 2014:51-53).

2.8.1 The Housing Needs Theory

The Housing Needs Theory was introduced by Rossi (1955) to conceptualise residential satisfaction and dissatisfaction. Rossi posits in his theory that a household goes through a cycle and as the household progresses, so do the housing needs and aspirations in regard to their housing and neighbourhood situations. Dissatisfaction with the current residence is increased when there is a contrast between the current and the desired housing needs of the residents. In response to the dissatisfaction experienced by households, families tend to migrate to other areas that will satisfy their needs, or they adjust to their surroundings. As the cycle progresses, it introduces several space requirements which play a vast role in the needs of households. Therefore, if the current housing and its neighbourhood do not satisfy these needs and desires, then residents are more likely to be dissatisfied. The housing needs theory can be summarised in three main points: the life cycle changes

housing needs; housing stress and dissatisfaction is caused by discrepancies between current and desired housing needs; and migration is a response to distress (Mohit and Raja 2014:51).

2.8.2 The Housing Deficit Theory

To conceptualise residential satisfaction/dissatisfaction, Morris and Winter (1978) introduced the Housing Deficit Theory. Their housing adjustment model of residential mobility theorises that normatively defined norms, which include cultural norms and family/personal norms, are used to judge an individual's housing condition. Cultural norms are dictated by the societal standards which are rules for life, whereas family/personal norms portray a standard for housing of a household. Therefore, housing deficits are caused by the lack of congruency between the actual housing situation and the norms. This factor is likely to give rise to residential dissatisfaction. Therefore, due to these deficits that cause dissatisfaction, some form of housing adjustment is made. In order to improve their housing conditions, and reduce the level of dissatisfaction, inhabitants tend to revise their needs, which may reconcile their congruity, compelling them to make in-situ upgrades such as remodelling, to increase satisfaction levels. Another option used by inhabitants to align with their needs is to migrate to a more suitable dwelling unit or environment. The housing deficit theory can be summarised in three main points: norms are used to determine housing conditions; housing deficits are caused by the incongruity that occurs between actual and family norms; and mitigation for housing deficits is housing adjustments (Mohit and Raja 2014:51-52).

2.8.3 Psychological Construct Theory

The notion of the Psychological Construct Theory of residential satisfaction was introduced by Galster (1985) who sought to explain that individuals tend to create a reference condition for a specific housing condition. An individual's self-assessment needs have a direct impact on the quality or quantity of a given facet. Basically, a psychological state of satisfaction is established when the current situation is within proximity or superior to the current situation. However, if the current situation may be deficient in the reference situation, then two things are likely to happen. Firstly, adaptation may be used as a technique to reconcile the incongruence. By redefining needs and aspirations as well as re-evaluating the current situation, one can alter one's expectations, which allows one to adapt and produce at least a bit of satisfaction. The second alternative can be manifested when one is incapable of adapting to the current situation in which case dissatisfaction is caused. In these cases, individuals are likely to endeavour to alter or to remodel their present dwelling unit to reduce the level of dissatisfaction experienced.

Alternatively, the level of dissatisfaction experienced may also induce an individual to migrate to a more compatible residential situation. It should be taken into consideration that lower income households have a moderately limited amount of purchasing power in these situations. The psychological construct theory can be summarised in three main points: individuals usually create a reference condition which is used to judge the residential situation; satisfaction is triumphant when the current housing situation is relatively consistent with the reference situation; and the lack of congruence will lead to adaptation either through modification or through migration (Mohit and Raja 2014:52).

It is important to understand that one, or a combination, of the theories above is/are used in empirical studies on residential satisfaction. Mostly, housing studies analyse and depict a host of variables which represent housing and neighbourhood characteristics, demographic attributes and opinions and perceptions of their housing and neighbourhood situations (Lu 1999). However, Bruin and Cook (1997) have concluded that some empirical studies show that the Housing Deficit Theory is more favourable when explaining residential satisfaction and mobility. Residential studies as indicated by Chadbourne (2015), are useful because they aim to inform urban planners, architects, the government and general public on how to assist and understand the profound increase in population of the world. This assists in managing urban growth through a change in urban form while understanding the benefits and drawbacks of the residents themselves.

2.8.4 Critiques of housing theories

As much as housing theories are existent to help us understand inhabitants and their households, there are also many criticisms around them. For instance, Aalbers and Holm (2005) argue that in the case of subsidy housing, the end users have no economic power in relation to what is provided to them. This presents a gap between the underlying theories that the designer holds and the actual quality of life of the residents. They furthermore highlight the concepts of a need and a satisfier. There are various aspects to the concept of a need and in the South African context the general need is a house. This instantly indicates that if a person is given an object that is called a house one can assume that their need has been satisfied. However, people need to stay alive, and they also need to feel safe in this particular house.

A question also arises around the design of houses, where there needs of the public in a specific environment are not taken into consideration (Aalbers and Holm 2005). Hudson et al. (2019) supports this notion in his research, where he explains that where there is a lack of connection between decision makers and end-users, there is a lack of clarification on the users' needs based on participation and there is a significant absence of the end-user participation in service delivery. Kemeny (1992) argues that housing studies neglect theoretical debates in the social study aspects by restricting housing studies to only a certain extent. He explains that researchers found what is called a "smallest common denominator" of housing and worked on that. Rather than being a multidisciplinary field of research, it became adisciplinary. According to Ruonavaara (2018), the question about developing a "grand theory" about housing that can be applied to various social and geographical issues remains unanswered.

2.9 Housing satisfaction conceptual models

2.9.1 Michelson's Integrated Model 1977

The Michelson's Integrated Model, also known as the Behaviour Model, focuses on the behaviour of individuals in terms of mobility, user needs, choices and environment. Michelson's model focuses on the resident's mobility from their homes and has identified residential satisfaction to be a major determinant in this factor. It is like the psychological construct theory, which explains that responses

by the resident due to dissatisfaction will lead to either adaptation, alteration or migration. Michelson (1977) outlines the major constructs of this model to be aspirations, primary demands, expectations, physical settings, perceptions and resident's behaviour. The first step of this model is assuming that primary demands and aspirations are a major starting point in the interaction between residents and their housing environment. Thereafter, these aspirations and expectations will directly influence the characteristics of the physical environment. An assessment is conducted by the resident of the various factors through perception, which then shapes the foreseen and unforeseen behaviour of the resident.

The core idea of the Michelson Model is that it asserts that these changes in the primary needs of the residents directly affect their overall evaluation of the housing environment, which may result in the resident harvesting a positive or negative perception of their physical setting. Although the model allows for evaluation based on an individual's aspirations which may result in new or better homes, the lack of affordance or absence of a better environment may cause a block (Michelson 1977).

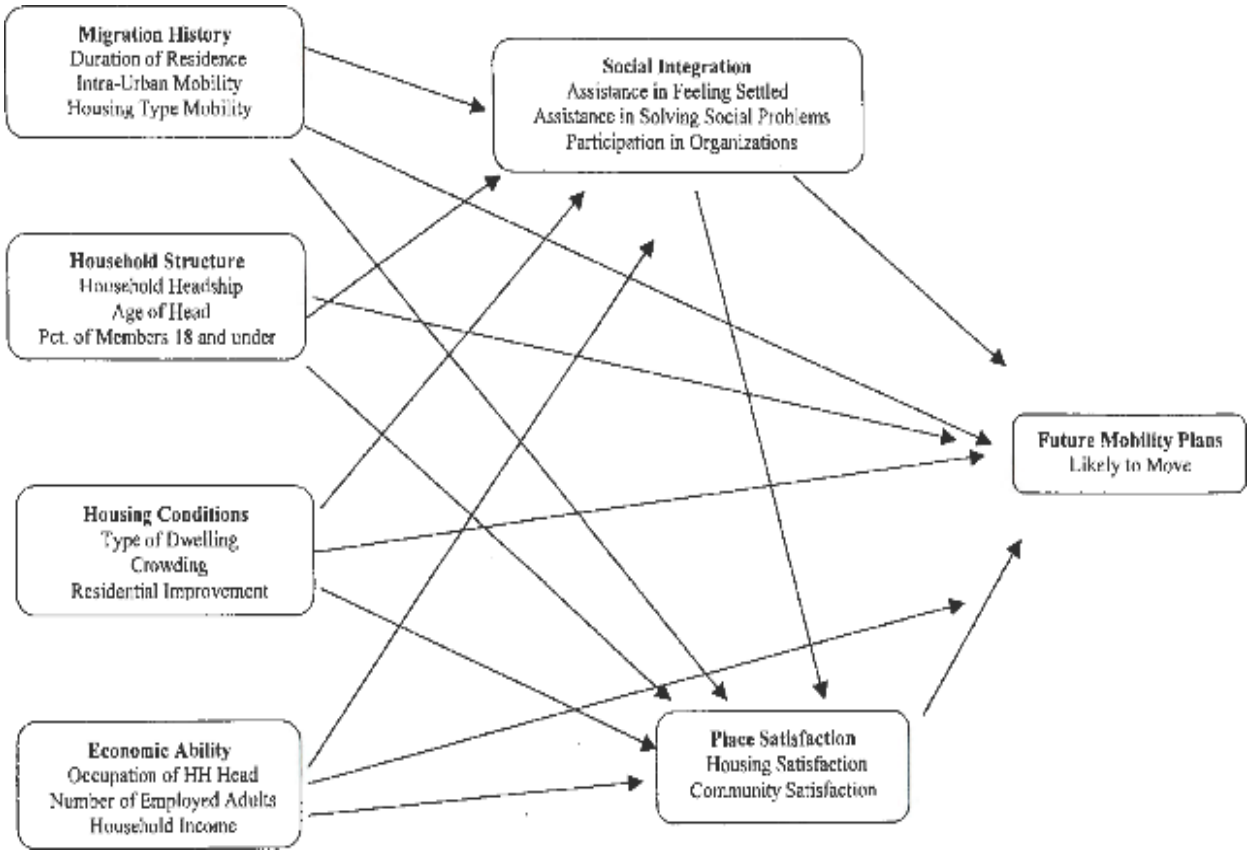


Figure 3: The main constructs that influence mobility (Parashar 2000)

2.9.2 Onibokun's Habitability Model 1974

The Onibokun's Habitability Model assesses the factor of habitability through the satisfaction evaluation of a tenant living in a specific housing unit. Since this model is focused on the habitability of a specific unit, it is essential to understand the subsystems of the housing unit. This housing unit is said to be located within a housing project which is run by institutional management that oversees

the community. There are four subsystems that involve the housing habitability model: the tenant's subsystem, the dwelling subsystem, the environment subsystem, and the management subsystem. Onibokun's hypothesis outlines that the housing unit, structural quality, internal space, household services and the quality of the amenities of the internal environment all determine the level of residential satisfaction. It can therefore be said that the housing unit is not the only variable that affects the overall household satisfaction rate.

This model singles out, from all the subsystems, the inhabitant as the recipient, thus making the inhabitant the central focus of the model. However, a major criticism of the Habitability Model is that it remains limited in terms of the real and complex situation of housing satisfaction. This limitation is what sets back the model, allowing the introduction of newer models (Onibokun 1974).

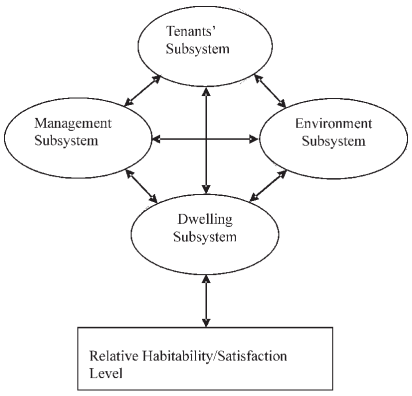


Figure 4: The relations between the subsystems in the Onibokun Habitability Model (Adebayo and Iweka 2014)

2.9.3 Housing Adjustment Model

The Housing Adjustment Model or the Normative Model was developed by Morris and Winter (1978), who also introduced the notion of the housing deficit theory to hypothesise residential satisfaction/dissatisfaction. The Housing Adjustment Model, similar to the Housing Deficit Theory, is practised by having a set of norms which individuals use to rate their housing situation. If their housing situation is below or does not align with these norms, then dissatisfaction is likely to occur. Mohit and Raja (2014) explain that behaviour characteristics are the efforts that families put in to redress the discrepancies that occur within their housing when experiencing deficits. When a family experiences a normative housing deficit that reduces housing satisfaction, then housing adjustment is likely to occur. Types of these adjustments include residential mobility and residential alterations. The two types of alterations or additions undertaken to correct normative housing deficits as outlined by Morris and Winter (1978) are:

- increase in size: changing the space or number of rooms in the dwelling unit; and
- increase in quality: improvement of the physical quality of the dwelling unit.

The figure below shows the relationship between the Housing Adjustment Model, the deficits and the related variables the affect adjustment.

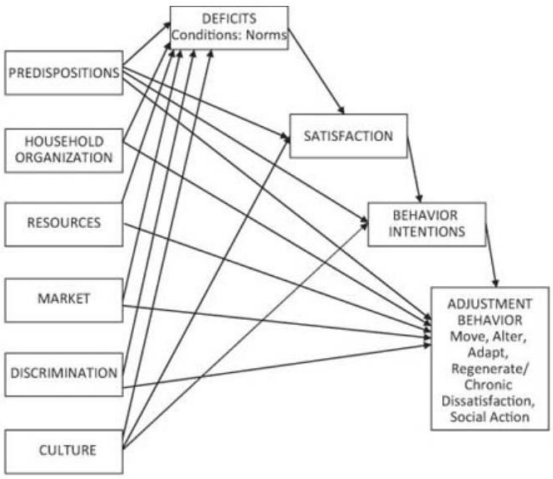


Figure 5: A summary of the Housing Adjustment Model (Bruin and Cook 1997)

It should be noted that the Housing Adjustment Model emphasises various variables within its study, including the significance of culture which is an important factor in satisfaction research in developing countries. However, critiques have determined that the culture factor was not considered as a separate factor in the study. Although the model stipulates that standards should be set according to the cultural environment of each country, it ignores the fact that standards should be set according to local housing needs rather than some universal criterion. This is a limitation because different countries have different housing needs, therefore deeming the model less useful in some countries. In developing countries like South Africa, it is essential to measure the physical quality of the environment as objectively as possible since the standards are mainly for the low-income groups (Aigbavboa and Thwala 2013a).

2.9.4 Marans-Rogers Model 1975

The Marans-Rogers Model focuses more on the external characteristics when measuring residential satisfaction. This model conceptualised the perception of neighbourhood characteristics such as the physical environment, the quality of community and services that are a major component in a resident's satisfaction level. The core concept of this model is that it explains that the evaluation and overall satisfaction level is highly related to an individual's own characteristics.

Although this model assesses neighbourhood and community characteristics, it lacks the details in personal characteristics, as Marans and Rogers assessed personal characteristics through housing and neighbourhood characteristics. This type of assessment caused a loophole in the model creating a limitation. This limitation caused the Path Analysis Model to emerge (Aigbavboa and Thwala 2013b).

2.9.5 Path Analysis Model

Hourihan (1984) developed the Path Analysis Model, which describes the interrelation between residential satisfaction and personal characteristics. The Path Analysis Model seeks to understand the importance that personal and neighbourhood variables have in relation to residential satisfaction

(Aigbavboa and Thwala 2013a). Jiang, Feng, Timmermans and Li (2017) assert that the Path Analysis Model can be used to capture both the direct and indirect relationships that occur between social demographics, residential satisfaction and intention to move. Other personal characteristics that can be measured with this model include social class, local social attachments, residential experience, life cycle stages and housing type. Within this model the attributes of the neighbourhood are also found to be influential on the level of housing satisfaction. Such attributes would be safety, design of dwelling unit, stability and friendliness.

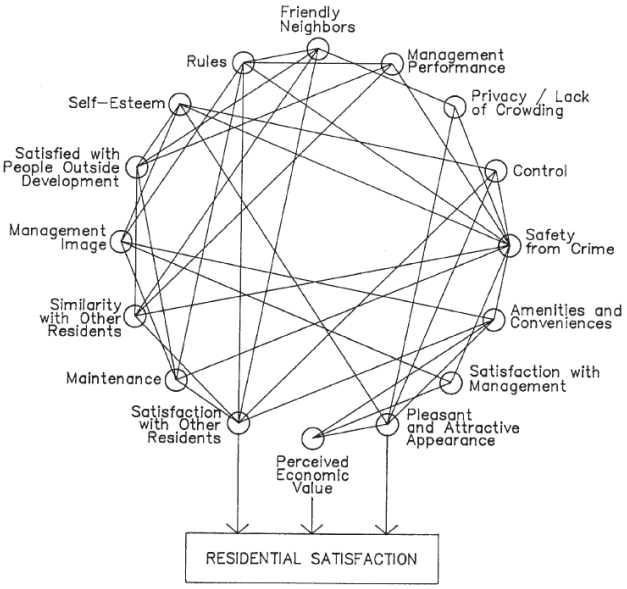


Figure 6: Empirical Path Analysis Model of residential satisfaction (Francescato et al. 1989).

The Path Analysis Model is very useful when measuring both direct and indirect relationships between several groups of variables. However, a major limitation to these studies is that they examine statistical relationships between housing attributes, intention to move and actual movement patterns. The result of ignoring relevant factors may cause biased results, leading to flawed conclusions. Evidence of a single integrated analysis is still scarce, which implies that the studies have little empirical evidence about the direct and indirect relationships between housing attributes, residential satisfaction and intention to move. Different countries have different attributes that determine living conditions to be positive or negative, and therefore the question in regard to this model is whether the results of a study can be generalised in respect of other countries.

2.9.5 Francescato Model

The Francescato Model developed by Francescato et al. (1974), was an attempt to understand the relationship between man and the environment by means of understanding the 'user's needs. During their study, the issues identified were important components of a resident's housing which allowed them to develop measures for satisfaction. The model, which was empirically derived, appeared to have revealed issues that were direct and indirect predicators of housing satisfaction. Later, this model became a prototype of housing satisfaction studies, and was used as a framework for housing evaluation researchers. The Francescato Model (1974) reveals the housing environment to have a multi-faceted character. This model recognises important predicators which are related to the physical

environment, social environment and the housing environment such as safety, physical convenience and social interaction. This led to the notion being formed which explains that there are three levels at which residential satisfaction is perceived: the residential environment (physical), the social environment and the housing environment (individual). The Francescato Model (1974) asserts that there is a direct functional relationship that exists between residential satisfaction and each of the above components.

The Francescato (1974) Model may include all the basic components that ensure satisfaction however, it does not include a resident's behaviour and values. The model also ignores some levels of the physical environment such as the home, neighbourhood and city and focuses its satisfaction levels on only one side of the equation while completely ignoring the human behavioural side. Francescato et al. (1987) believe that the level of satisfaction varies, which means that different individuals or social groups may have different personal and social norms which results is different expectations, therefore, it is difficult to assume a base satisfaction indicator.

2.10 Framework for residential satisfaction

After reviewing the major theories, models and empirical studies of residential satisfaction, Mohit and Raja (2014) developed a multi-faceted indicator framework of residential satisfaction. This framework is useful in determining the main factors that influence the level of residential satisfaction. The framework consists of a composition of components where each component is represented through several variables.

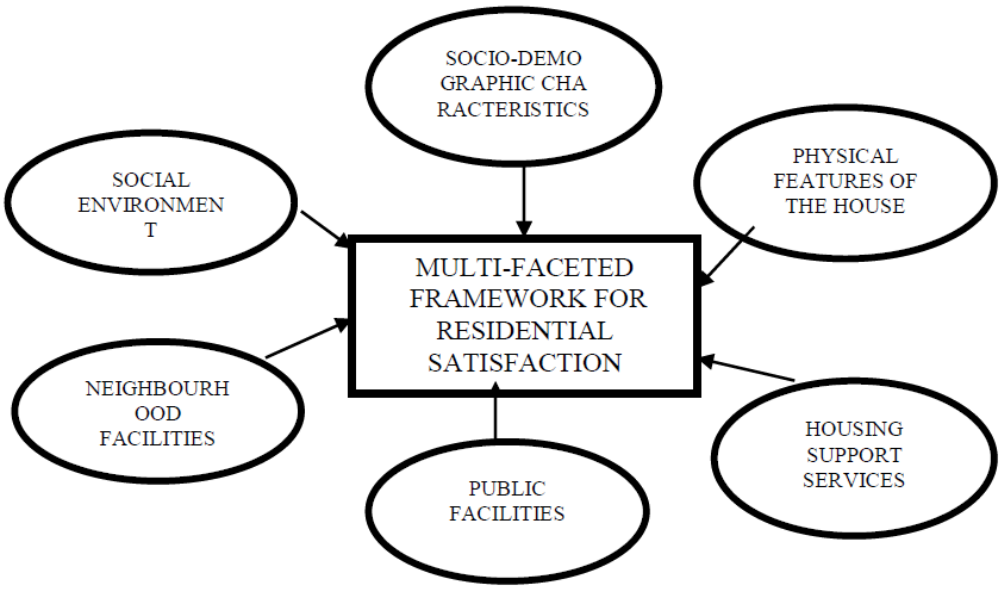


Figure 7: Multi-faceted framework for study of residential satisfaction

Although residential satisfaction studies can be exceptionally useful in understanding the differences between what is currently given and what is desired by the inhabitants, authors have identified criticisms of the concept. After an extensive literature review, Francescato et al. (1987) identified criticisms which entail that it is more essential to focus on the real problems rather than just satisfaction since focusing on satisfaction may result in creating sub-optimal environments. These authors also emphasise that satisfaction levels may differ according to social group, social expectations and time, which implies that the satisfaction needs are not a uniform concept, resulting in the approach being a less competent measure of residential conditions. Pacione (2003:23) mentions further that there is no social theory that can explicitly define the wellbeing of humans with their current household and environment. It can be argued that despite the considerable amount of research undertaken, it has not reached a stage that indicates a definitive list of criteria for satisfaction. Ogu (2002:40) specifies that when there is a high level of uniform satisfaction it can be recorded, however it may not always represent true conditions on the ground. This explains the situation that if a respondent lacks awareness of better alternatives, then the level of satisfaction will be higher.

2.11 Conclusion

This chapter aimed at identifying the major concepts involved in housing studies and their underlying theories. The focus was to create a framework that would assist in the understanding of international and local precedents and the history of residential satisfaction. Residential satisfaction may contain three main theories: housing needs, housing deficit and physiological construct theories. However, as mentioned earlier, it is important to understand that the theories can be co-dependent on each other when conducting empirical studies. The housing conceptual models are merely extensions of the housing theories that have improved over the years (Mohit and Raja 2014).

3. Chapter 3: Local and international precedents

3.1 Introduction

Waziri et al. (2013) explains that household satisfaction directly determines the quality of life which conforms to an inhabitant's needs and aspirations. To determine the level of satisfaction, a determined periodic assessment of all the variables that influence housing must be done. In the developing world, housing is a more critical factor of a person's lifestyle than it is in the developed world. Mostly, in developed countries, residential satisfaction studies are used to examine the levels of satisfaction in higher class units. In most developing countries, there is a drastic increase in urban population due to rapid urbanisation rates. This leads to the problem of housing shortages. This chapter is a summary of various studies done internationally, based on four major factors that influence the overall residential satisfaction. These factors are housing characteristics, neighbourhood characteristics, socio-demographic characteristics and behavioural characteristics.

3.2 Housing characteristics

Housing features are made up of various determinants and to acquire a more accurate response in studies pertaining to this topic, a persistent knowledge is required. Lane and Kinsey (1980) explain that the characteristics of a house are regarded as superior determinants in housing satisfaction, rather than the demographic characteristics of households. The physical quality of a dwelling, the type of dwelling, the size and the distance of the dwelling from the city are all components of housing characteristics. Likewise, Mohit et al. (2010) explain that dwelling unit features are the internal spaces in a dwelling unit such as the dining, kitchen, toilet, bedroom, bathroom, drying areas and the ventilation system. The size or location of these features is what brings about dissatisfaction in a household. Various residential satisfaction studies have been undertaken to determine the desirability of features and the level of satisfaction in certain household groups.

In an empirical study, Mohit et al. (2010) focused their housing satisfaction study on the newly designed public low-cost housing in Kuala Lumpur, Malaysia. Here, they identified two major problems in the Malaysian housing sector. Firstly, from a quantitative approach, the amount of housing provided did not meet the basic demands for the low-income group and secondly, from a qualitative approach, the housing that was initially provided was unsatisfactory for the family's needs, which directly affected the psychological aspects of the inhabitants. Mohit and Azim (2012) based their research around Hulhumale, Maldives, where they assessed residential satisfaction with public housing. Here they examined the components that affect residential satisfaction, namely: physical features, the provision of services, the availability of public facilities and the social environment. The results of the study indicated that there is a variation in the levels of satisfaction with the provision of services and public facilities.

However, the latter study does record that there is a low level of satisfaction with the housing unit in respect of the condition of the washing and drying area, the number of electrical sockets, the number of toilets, cleaning services of the corridors, street lighting, garbage collection and security levels within the housing unit. The study also found that owners have a lower satisfaction rate than tenants,

which is contrary to the findings of the study done by Ibem and Aduwo (2013) in Ogun State, Nigeria, where they found that renters have a lower satisfaction rate.

Chadbourne's (2015) research aimed to explore the level of residential satisfaction within Australia's new urbanist development style. He identified comparisons to a suburban Blackwood Park development in the suburb of Craigburn Farm, South Australia. The study aimed at improving the understanding of the relationship between residential satisfaction and the underlying elements of the changing urban form, understanding neighbourhood structure and influences, and assessing demographic characteristics in Adelaide. The results of the study indicated that there is a negative relationship between density and satisfaction levels. Dissatisfaction arises when it comes to open space, value for money and privacy, and this demonstrates that people prefer larger and detached homes. However, he also found that people are highly satisfied with their proximity to work and transport services (Chadbourne 2015).

According to Lin and Li (2017), based on their research done in Wenzhou, China, which sought to reveal the housing and living environment and evaluate residential satisfaction of migrants, these migrants are dissatisfied with their living conditions. They explain that the difference in housing sources causes the variation in the responses. The highest satisfaction rate in regard to living conditions comes from those who are living in dormitories. Furthermore, those who own a house are not necessarily satisfied. And lastly, the lowest level of satisfaction comes from those living in urban villages.

It can be easily concluded that the structural attributes of a house are a significant factor that affects the housing satisfaction (Hipp 2010). Positive housing satisfaction is obtained when the precedent supports the conceptual model, which explains the relationship between housing norms and housing satisfaction. If the housing that is allocated does not meet the expected norms of the society, then dissatisfaction is likely to occur (Amole 2009). Also, in developing countries, the quality of life of low and middle-income residents can be enhanced by providing basic social amenities, public housing schemes, infrastructure facilities and other opportunities (Ibem and Aduwo 2013).

In the case of China, Lin and Li (2017) explain that the focus of research is mainly on megacities such as Beijing, Guangzhou, Shanghai and Shenzhen and little or no attention is given to smaller, ordinary cities. Over the years, the ratio of migrants has influenced the socio-spatial structure of the urban environment. The provision of decent housing for rural migrants in China is a challenge, and this group of individuals is regarded as a disadvantaged group. Overall, people are normally dissatisfied with either the physical features of the dwelling or the neighbourhood environment and this can be altered by either rectifying the situation or upgrading the area.

3.3 Neighbourhood characteristics

In housing studies, neighbourhood satisfaction is regarded as one of the predicators of residential satisfaction (Lu 1999). This is because neighbourhood satisfaction can have a direct effect on mental health. Also, the physical and social neighbourhood environment can have direct effects on perceptions of safety (Grogan-Kaylor et al. 2006). Oh (2003) also discovered that neighbourhood satisfaction plays an important role in the intention to move.

In an empirical study, Buys and Miller (2012) conducted their research in the inner city of Brisbane, Australia, where they sought to understand and identify the elements of the dwelling neighbourhood that contribute to satisfaction in high-density environments. The study indicates that the overall residential satisfaction in high-density dwellings is dependent on both satisfaction with the dwelling and with the neighbourhood. This satisfaction is determined by a set of attributes which includes location, design, neighbourhood noise and safety. Buys and Miller (2012) found that there was a vast majority of residents in high-density neighbourhoods in Brisbane that were extremely satisfied with their neighbourhood and dwelling; however, concerns were raised about the heavy and dangerous traffic volume, poor transportation links, limited parking due to a higher dwelling count, and the need for more open and safe green space. In such high-density neighbourhoods, there is always a negative response in terms of privacy since there are multiple dwellings that have a shared space (Palsane et al. 1989); however, Buys and Miller (2012) found that this community in Brisbane has a sense of belonging amongst neighbours which in turn creates a kind of lively community.

In Nigeria, Ibem and Aduwo (2013) assessed residential satisfaction in public housing in Ogun State, Nigeria. They found that residents were generally dissatisfied with their housing conditions, specifically neighbourhood facilities and services. However, they also identified the different responses in terms of socio-economic status and dimensions. The overall satisfaction levels were higher among those who hold a mortgage as opposed to those who are renting. Ukoha and Beamish (1997) also conducted their study in the public housing of Abuja, Nigeria, where they found a positive satisfaction response towards neighbourhood facilities in the area, which described a clean neighbourhood and the availability of basic neighbourhood facilities such as shops and other social facilities. However, they also identified a high dissatisfaction rate with housing characteristics such as management, structure and building features and housing conditions. In terms of management, residents explained that the response rate in respect of necessary complaints, repairs and handling of complaints was very poor, as were the enforcement of rules and rent. The negative response regarding housing structure types and building features is the result of a lack study space, insufficient number of bedrooms and inadequate privacy. The public housing conditions of residents in Abuja are poor, with dissatisfaction emanating from matters such as plumbing, quality of doors and painting of buildings. The quality of public housing in these areas is rapidly degenerating as a result of the increase in population and overcrowding. Lack of maintenance and poor construction is also a major factor contributing to the deterioration (Ukoha and Beamish 1997).

According to Peck and Stewart (1985), there is a negative relationship between person-per-room ratio and housing satisfaction. This means that as the population in each room increases, housing satisfaction decreases. Also, Amole (2009) examined residential satisfaction in some student housing in Nigeria and found that the student housing provided performed below the average user's evaluation and did not correlate with the student's aspirations and expectations. Although the results of the study cannot be generalised to all student housing in Nigeria, it does somewhat explain the situation of most of the residences and was able to show the morphological configuration. Oh (2000) conducted her housing satisfaction study in middle-income households in Bandar Baru Bangi, Malaysia. Her study reveals that residents in the area were dissatisfied with the dwelling characteristics such as the size of kitchen and the plumbing. The residents also showed a negative response in regard to public facilities which included playgrounds, recreational area and public transport services in the area.

Chadbourne (2015) based his research in a low-density city, that of Adelaide in South Australia. He identified that in such low-density cities, higher dwelling densities are broadly promoted by planners, polity-makers and academics. This is used as a technique by the government to reduce the amount of travel time and increase accessibility rates, while also being a response to the negative impacts of urban sprawl. Historically, Australia had for decades been defined as having low dwelling densities and segregated land use which became a cultural norm engraved as the "Australian dream". Today, in the new planning world, guidelines are focused on encouraging polices towards a more compact city, with the idea of new urbanism for future development in Australia. According to Kelbaugh (2002), the New Urbanism is a design movement which promotes a walkable city as well as compactness with easily accessible neighbourhoods and a range of housing options.

Chadbourne (2015) also investigated Mawson Lakes and found that increased density resulted in a decreased satisfaction level. Particularly, people are dissatisfied when it comes to privacy, open space and value for money as they prefer larger detached homes. On the other hand, in terms of neighbourhood satisfaction, people are highly satisfied particularly in regard to their proximity to work, shopping, transport services, and so forth. These findings of the study point to a 30-year plan for Adelaide to densify the city, but according to the needs of the people. Although residential satisfaction levels are low with higher dwelling densities, there are positive responses to neighbourhood accessibility and residential studies can identify deficits in areas and structure policies to receive greater levels of satisfaction (Chadbourne 2015).

Benin City in West Africa is an exemplar for residential studies in developing countries. Over the past few decades, Benin City has grown rapidly, putting pressure on the city's housing, infrastructure and services. A study was undertaken in the city (Chadbourne 2015) to examine the patterns of residential satisfaction and to argue the significance of satisfaction in social, planning and management issues. Scholars argued that by incorporating people's perceptions of satisfaction can lead to a better quality of housing, while some stress that it is important that a perception of a contemporary housing situation should comply with the normative approach. The study focused on two major components, which were the housing component and the environmental component. The housing component included dwelling and amenity variables which outlined facilities, access to water and general conditions of a house. The environmental component outlined service variables such as refuse removal, access to road and bulk services etc.

The results of the study indicate that most people are satisfied with their current housing situation. However, dissatisfaction arises when it comes to the environmental component. It can be seen that people are not satisfied with the quality and number of services that are currently available. It has also been observed that residents expect the quality of public constructed units to meet the highest society norms. However, it is argued that the ownership of a dwelling unit, regardless of its design or quality of construction, is an achievement in itself (Ogu 2002).

In another part of Africa, Adebayo and Iweka (2014:27) aimed to establish thresholds at which occupants of a mass housing prototype apartment in Lagos, Nigeria are likely to experience dwelling space deficits. In order to determine the levels of satisfaction and deficits, five low-income prototype designs were selected, analysed and rated according to capacity and occupancy. The results of the study show that certain multifamily apartments were developed without consideration of occupancy. Results indicate that at least five of the low-income design prototypes show evidence of numbers

beyond the benchmark, which is likely the reason for overcrowding, thus there are dwelling space deficits (Adebayo and Iweka 2014:33)

3.4 Socio-demographic characteristics

There are numerous characteristics of residents such as age, income and ownership, which may affect the overall housing satisfaction rate of an individual (Speare 1974). In most empirical studies conducted, age portrays a positive role towards the level of residential satisfaction. According to Weidmann (1989), elderly residents are likely to have a higher level of residential satisfaction than younger residents. Whiteford and Morris (1986) studied the relationship between age and housing satisfaction with tenure type housing, using multiple regression analysis. Their study found that older renters are much more satisfied than younger renters. Fernández et al. (2003), in their study in Madrid, had also found that the levels of residential satisfaction are higher among the elderly. However, Mohit et al. (2010), in their study in Kuala Lumpur, Malaysia argues that there is a negative relationship between age and residential satisfaction.

Another factor in the characteristics of residents is the level of education. A study in Andalucía, Spain, conducted by Vera-Toscano and Ateca-Amestoy (2008) reveals that education is a major factor in a household. Their study concluded that there is a positive relationship between the level of education of the heads of the household and the satisfaction level. This also meant that households with a lower education attainment had a lower satiation level.

Although Lu (1999), who studied the determinants of residential satisfaction, found no relation between education and housing satisfaction, a study conducted by Campbell et al. (1976), showed a clear positive relationship between age, income, education and housing satisfaction.

Tenure status of homeownership is also a key determinant of residential satisfaction. According to Lu (1999), there are many studies that reveal that residential satisfaction is higher among homeowners than among renters. Tan and Khong (2012) studied the link between homeownership and housing satisfaction and found a correlation between the two. Kaitilla (1993) explains that the reason for a higher satisfaction rate in homeowners is because ownership makes people feel psychologically proud. Elsinga and Hoekstra (2005) and McCarthy et al. (2001) also support this by asserting that homeownership is preferred over renting because it provides greater security, more freedom and financial advantage thus increasing the housing satisfaction rate.

Income can also be an impacting factor in housing satisfaction. Kim, Mohrig, Twilley, Paola and Parker (2009) found that lower income residents in Korea have a lower satisfaction rate than those of other income groups. Fallahi and Mehrad (2015) derived from their research that the level of income is an essential factor that influences residential satisfaction. This is because a higher income allows for access to more facilities, therefore resulting in a higher housing satisfaction rate and quality of life.

3.5 Behavioural characteristics

According to Morris and Winter (1978), behavioural characteristics are the efforts that families put in place to address the discrepancies that occur between the desired housing and the current housing. This process is called housing adjustment and occurs when a family is experiencing a housing deficit, which in turn causes a reduction in housing satisfaction. The housing adjustment process can lead either to residential mobility or residential modification. Speare (1974) outlines the three primary drivers of residential satisfaction and the intention to move as follows: the factors of the household, the factors of the location and the social bonds to other individuals. Morris and Winter (1978) also point out that there are two main phenomena involved in residential alterations: the increase of residential space and the improvement of quality of the dwelling.

Newman and Duncan (1979) identify five variables that influence and individual's behaviour to move. These are: background variables (demographic and social); housing and neighbourhood variables (quality); psychological variables (satisfaction or dissatisfaction); intention (to move); and behaviour (actual mobility). In their research of residential problems, dissatisfaction and mobility, they sought to understand behavioural relationships and housing and neighbourhood problems. Although they found a link between problems of housing and neighbourhood satisfaction, there was a lack of evidence that would trigger mobility. The most pressing issues that they discovered that would affect mobility were a plumbing problem, which is a housing characteristic, and congestion, which is a neighbourhood characteristic. Newman and Duncan (1979) explain that although both problems affect satisfaction and behaviour and predicating mobility, plumbing is a structural problem that is depressing yet tolerable.

In China, Fang (2006) conducted a study of residential satisfaction of redeveloped neighbourhoods on inner-city Beijing. His study investigates residential satisfaction using data collected from household surveys with semi-structured and open-ended questions in four neighbourhood redevelopment cases. Here, the focus of residential satisfaction research is based on the social psychologists' environmental perception process, which is that a resident's moving behaviour follows effective and cognitive responses to their residential environment. Results of the study show that the redevelopment did not have a major effect on the level of residential satisfaction of the residents. Some residents are compelled to live within the inner-city because they have no other choice. Those who choose to do so are the households that compromise other household needs. Results also show that residents who moved in experienced the same poor design and construction conditions, as well as poor maintenance management of their buildings. The results of the research show that the overall residential satisfaction rate is low in four redeveloped neighbourhood projects in Beijing, and this is probably because it is hard to sustain and maintain residential satisfaction in subsidised redeveloped housing schemes. There is no doubt that residential satisfaction studies that are conducted in western countries examine a person's satisfaction levels based on dwelling, neighbourhood and environmental factors. However, the results of these studies are not suitable for generalising to other less developed countries due to the small amount of research available (Amole 2009).

According to Pickvance (1973), a major determinant of mobility is the characteristics of a household. His study concluded that tenure is an intervening variable between the characteristics of a household and mobility. In support of the model that Pickvance (1973) built, Speare (1974) bases his research on the individual household and the behavioural factors that determine mobility. After analysing the

results of the various studies conducted, it can be strongly concluded that housing dissatisfaction plays a vital role in the propensity to move.

3.6 Residential satisfaction in the South African context

From a South African perspective, Onatu (2012) notes that "South African cities inherited a dysfunctional urban environment with skewed settlement patterns that are functionally inefficient and costly, and a huge service infrastructural backlog in historically underdeveloped areas". According to Sipungu and Nleya (2016), South Africa currently has an undersupply of rental accommodation and with the absence of this, public and private sector workers are compelled to reside with family or are likely to shelter themselves with inadequate accommodation by either squatting in the inner-city or building backyard shacks. The South African government is using the housing subsidy approach as a main vehicle to address the housing backlog. This is seen as a key instrument to develop housing for low-income households.

Locally, Aigbavboa and Thwala (2012) conducted a residential satisfaction study in Gauteng, specifically in subsidised housing schemes in Johannesburg. The objective of the study was to establish predicators of both physical and social characters that influence the satisfaction levels of the residents. Their study concludes that the satisfaction levels of occupants living in subsidised housing is not very pleasing; however, if compared to the living conditions of a shack, then the subsidised housing has a much higher satisfaction level.

Currently, in KwaZulu Natal there haven't been any residential satisfaction studies done to examine the level of satisfaction within its areas. Therefore, neither government nor scholars have any knowledge as to what is needed by the different communities, or whether they are satisfied with their current housing situation. With the case of Chatsworth, the housing and infrastructure are rapidly deteriorating because they were provided years ago and require emergency maintenance. The incremental housing that was provided previously has now turned into informal settlements with backyard shacks causing overspills of current settlements. Historically, Chatsworth was meant to be an exclusively Indian township, but today it has flourished into a multiracial community that has various housing typologies and income groups. As indicated by Desai and Vahed (2013), Chatsworth has become a forgotten community and it is essential for theorists and scholars to understand the dynamics of these different areas to generalise the results of studies on residential satisfaction in developing countries.

3.7 Conclusion

The aim of this chapter was to provide an analysis of the various studies conducted internationally in support of the theories explained in the earlier chapter. The analysis shows that although there are various characteristics that may influence the overall residential satisfaction, housing characteristics are the most important, surpassing other characteristics, which can be somewhat tolerated.

4 Chapter 4: Methodology

4.1 Introduction

This chapter outlines the research methodology adopted by this research study. Research methodology is a set of guidelines and techniques to be followed for the collection and analysis of data; therefore, it is seen as a foundation consisting of theories and ideas when adopting an approach appropriate to the topic. As the basis of critical activity, it consists of choices about the character of the social world (Aigbavboa and Thwala 2013b). As discussed earlier, the main aim of this research is to establish the nature and extent of housing deficits in the formerly segregated Indian township of Chatsworth, Durban. The associated sub-objectives include identifying major housing theories, understanding the application of theory to local and international precedents, developing practical methods for investigating the level of residential satisfaction in the case study area of Chatsworth and drawing up conclusions regarding housing deficits in Bayview, Woodhurst and Crossmoor, in Chatsworth.

According to Cohen and Manion (2002), the purpose of research methodology is to understand the processes of an enquiry. Burrell and Morgan (2017) explain that social research paradigms can be classified in the four categories shown in figure 4.1.

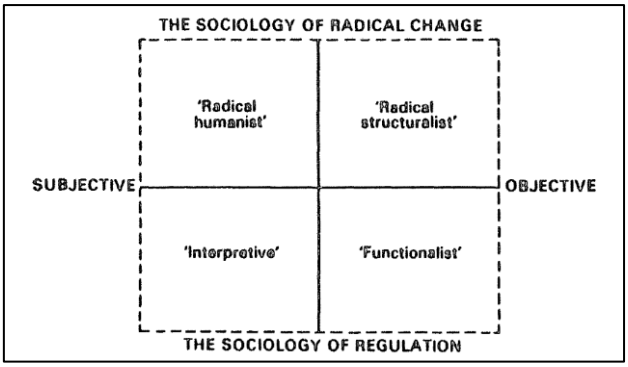


Figure 8: Four paradigms of social research. Source: Burrell and Morgan (1979)

This research study uses the interpretive approach to explore and investigate the nature and extent of housing deficits in Chatsworth and how this affects residents. Cohen and Manion (1994:152) explain that "Theory should not precede research but follow it" as the "theory becomes sets of meanings which yield insight and understanding of people's behaviour." Eisenhardt (1989) further adds that as a research strategy, case studies are used to build theories which involve using one or more cases to create theoretical constructs. From a teaching perspective, a case study uses interactive methods which result in experimental learning for students. For the purpose of this study, an instrumental case study will be used, which in our case is Chatsworth. Case research will be useful in gaining insight on the complications of Chatsworth which presently has unsatisfactory living conditions and uneven development. Relating to the broader spectrum of residential satisfaction and the research topic which is housing deficits in formerly segregated Indian townships of South Africa, the housing shortage has for decades been a challenge faced by both the developed and the developing world. In

accordance with this topic, Chatsworth was historically a segregated township intended exclusively for the Indian population. Over the years the township has experienced a vast housing and service delivery shortage, resulting in certain areas becoming even more deteriorated than others. Being a formerly exclusively Indian township comprising of a multiracial community, Chatsworth can be regarded as one of the prime areas for development in the municipality. The following study will use both quantitative and qualitative research designs. This is known as the mixed methods approach which will be used to answer the research questions in order to meet the research objectives.

4.2 Research design

The practice of research in real life uses either or both qualitative and quantitative methodology. The research design is a defined set of procedures and methods that is used when collecting and analysing variables (Maree 2007). The method of research to be used in the proposed study will be the mixed methods approach which will be used to explore and examine the housing deficits of the formerly exclusively Indian townships in South Africa, which in this case is Chatsworth. The mixed methods approach integrates both qualitative and quantitative methods. According to Creswell et al. (2003), the mixed methods approach is useful to capture the best of both quantitative and qualitative approaches.

4.3 The mixed methods approach

Maree (2007) explains the mixed methods approach to be a type of procedure that collects and analyses data by mixing both quantitative and qualitative data within a single study. This permits the research problem to be understood more precisely. This approach is characterised by both numerical and text information, which aids in the answering of the research questions. The mixed methods approach is integrated as the term “mixing” results in the data being connected at various parts of the study. This approach comprises two components: the quantitative component and the qualitative component. For the purpose of this research, the quantitative component will have responses from the sample population to Yes/No questions and the qualitative component will have open-ended interviews with various stakeholders of the community regarding the current situation of the area. The mixed methods approach is not only able to elaborate on quantitative results with subsequent qualitative data but also has the ability to develop a new measurement instrument or theory in qualitative data. The combination of these two types of datasets allows researchers to produce more well-validated conclusions, thus enhancing the datasets (Creswell et al. 2003).

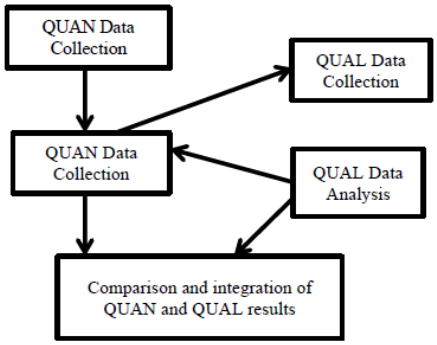


Figure 9: Visual model of mixed methods design. Source: Tashakkori and Teddlie (2003)

4.3.1 The quantitative component

The quantitative component of the mixed methods approach deals with the quantifying and examining of variables in order to get results. It is a method that utilises and analyses numerical data by using specific statistical techniques which answer the main questions of who, how much, what, where, when, how many, and how (Apuke 2017). Quantitative research methods explain an issue or phenomenon by gathering data in numerical form with the assistance of mathematical methods to analyse statistics (Aliaga and Gunderson 2002). The type of sampling method to be used for the quantitative component of the study will be stratified random sampling. Quantitative data is chosen in large random samples and is collected, classified and computed using statistical methods. Data can be represented using tabular forms or in diagrams using graphs or charts. It is classified as distinct or continuous and is acquired using surveys or experiments (Leedy and Omrod 2005).

Leedy and Ormrod (2005) suggest that this method is the most effective when analysing a study of our kind. This implies that areas that have their characteristics central to the phenomena will be chosen. The quantitative sample will contain a representative sample group from four selected typologies in Chatsworth. The type of data collection tool used in this method will be an electronic questionnaire on the KoBo App that individuals will respond to with Yes/No answers. Quantitative data analysis has an objective nature which seeks to understand the occurrence of events and thereafter describes them by using statistical methods (Atieno 2009). In the case of this study, the researcher will be measuring aspects such as, how many households have access to electricity? what percentage of households are satisfied with their housing situation? and so forth.

4.3.2 The qualitative component

The qualitative component of the mixed methods approach has its emphasis mainly in words and opinions rather than in statistics and numbers. It is concerned with issues of measurement that do not include numerical measurement. This type of measurement is often binary, which is interested in the absence or presence of phenomena. Predominantly, the aim of qualitative research is to understand the meaning of situations as well as to interpret events from other perspectives of the people involved. It adopts a deductive approach, thus generating theory from interpretation of evidence (Aigbavboa and Thwala 2012). Dey (1993) explains that qualitative analysis is concerned with the analysis of data

that cannot be quantified. Qualitative analysis can get a subterranean understanding of "why" a certain phenomenon occurs. According to Leedy and Ormrod (2015:154), qualitative researchers rely heavily on personal observations as sources of data. For the purpose of this research the qualitative component will render opinions and views of the sample population.

Since qualitative analysis seeks to obtain a deeper understanding, it is essential for the researcher to be well rounded regarding the physical properties of the site. As explained by Leedy and Ormrod (2015:154), unlike with quantitative analysis that is restricted by certain classification rules or numbers, qualitative data analysis can be wide-ranging and multi-faceted. It is subjective, descriptive, non-statistical and exploratory in nature. Dey (1993:30-31) furthermore asserts that this is a way of analysing data that cannot be computed, and which includes respondents of any colour, gender, nationality, taste, appearance etc., and in order to obtain this type of data, interviews or observations are conducted. Qualitative data analysis questions will mainly feature questions such as, what are your opinions? and how do you feel about a certain topic?

Qualitative data analysis tools include field notes, interviews, video, audio and open-ended survey questions that provide qualitative data for analysis.

According to Leedy and Ormrod (2013:152), during the qualitative data sampling phase in the mixed methods approach, a sample is required from the various hierarchies. During the sampling process of this study the following individuals were interviewed:

- ward councillors (69/70/71))
- area representatives
- bodies corporate; and
- any other relevant stakeholders

The information acquired from the various hierarchies should be able to explain how things are on average in a specific area/unit in Chatsworth, along with how much variability exists. This will be useful in gaining insights on:

- facts on Chatsworth
- people's beliefs and perspectives
- past and present behavioural patterns; and
- standards for satisfaction

According to Leedy and Ormrod (2013), during the qualitative data sampling phase in the mixed methods approach, samples are required from the various hierarchies in Chatsworth, which include conducting interviews with the following: ward councillors (69/70/71), area representatives, bodies corporate and any other relevant stakeholders. The type of data collection tool that will be used for the qualitative component will be open-ended interviews. The information acquired from the various hierarchies should be able to explain how things are on average in a specific area/unit in Chatsworth along with how much variability exists. It will be useful in gaining insights on facts about Chatsworth, people's beliefs on past and present behavioural patterns, and standards for satisfaction.

Leedy and Ormrod (2015) explain that qualitative researchers rely heavily on personal observations as source of data. For the purpose of this research, the qualitative component will provide opinions and views of representatives of the population.

4.4 Sampling

According to Maree (2007), the mixed methods approach applies both probability and non-probability sampling. From a quantitative perspective, Creswell et al. (2003) enlightens us that the random sampling technique is used when exercising the quantitative data approach. This allows for everyone to have an equal probability of being nominated for the study sample that is used to generalise to the entire population. Three of the oldest housing types were chosen for this study. They include: 2 storey social housing, 3 storey council flats and informal housing. Each type of housing had a different number of dwelling units, but the range remained between 900 – 1500. According to Leedy and Ormrod (2013), a population of that number required a sample of 20%. The Bayview social housing project, which comprised of 72 two-storey blocks each containing 8 dwelling units with a total population of 575 households, had a sample population of 115 units. The Woodhurst social housing project, which comprised 75 three-storey blocks each containing 12 dwelling units with a total population of 900 households had a sample population of 180 units. Lastly, the Crossmoor area that was sampled for informal housing had approximately 980 units, from which a sample population of 196 households was derived. Participants of the study were required to be over the age of 18 years and to reside in one of the above selected housing typologies.

Only one questionnaire per household was be completed. Upon arrival at the sample units, a letter of informed consent was given to the participants, providing all the relevant information about the study and a form for voluntary participation. Once consent to participate was collected, an electronic questionnaire was completed using the KoBo Toolbox App where each respondent were able to give the relevant responses. If an individual declined to participate in the study, the researcher/data collector moved on to the next dwelling unit. From a qualitative approach, selective sampling was used. This means that only certain people with higher authority in the area were able to participate. Such people included the ward councillors (69, 70 & 71), bodies corporate, area representatives and any other relevant stakeholders that had an interest in the area. Interviews were conducted with the relevant authorities. Each interview duration was approximately 20 minutes, interviews were conducted in between the data collection sessions and occurred at the individual's place of work or relevant office. A recording device was used to record every session of an interview.

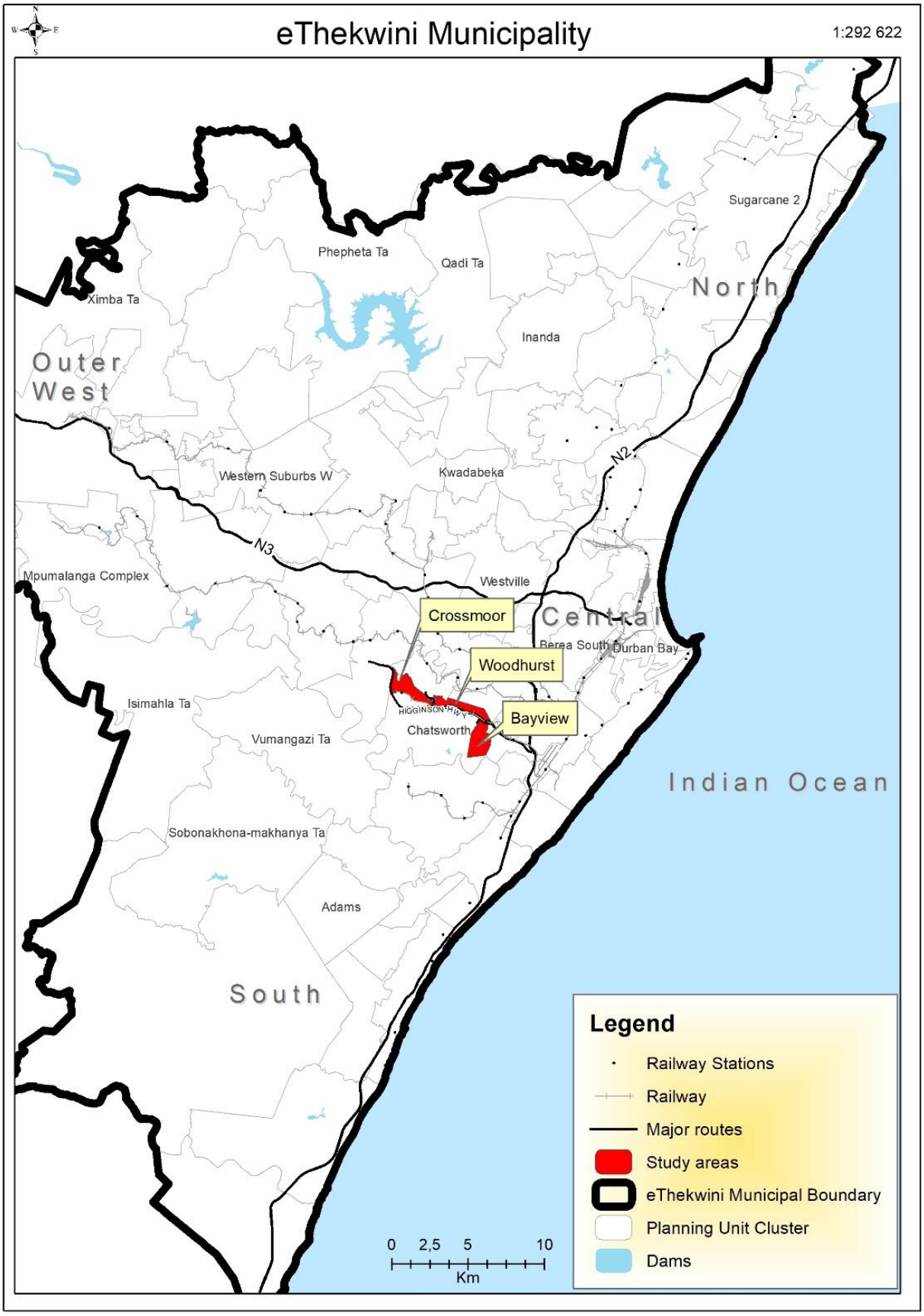


Figure 10: Location of sample areas. Source: eThekwini Municipality (2021)

Figure 11: The Bayview Social housing project

Figure 12: The Bayview social housing typology

Figure 13: The Woodhurst social housing project

Figure 14: The Woodhurst social housing typology

Figure 15: Crossmoor informal housing

Figure 16: Crossmoor informal housing typology

4.5 Data analysis

Data analysis within the mixed methods approach encompasses collecting and analysing data from both quantitative and qualitative designs. The mixed methods approach allows for quantitative and qualitative data to complement each other for a more comprehensive analysis of findings (Maree 2007). For quantitative data analysis, the first stage for preparing data has three steps. The first step is to validate the data collected: this includes checking for fraud if respondents have been selected randomly from the sample typologies in Chatsworth. The researcher will need to check if the procedure has been followed, if all questions in the questionnaire have been answered, and if nothing is incomplete. The second step of quantitative data analysis is data editing. Here, the researcher will conduct basic data checks to make sure no errors occur in the questionnaires, check for outliers and edit the raw data received from the KoBo Collect App. The third step involves coding the data, where the researcher will break down the spreadsheet received into different parts to allow quantification of the responses to each question and thereafter capture the results of the data. The quantitative data collected from the study will be represented by graphs and tables.

In terms of qualitative data analysis, since qualitative data is all about words and the researcher is conducting qualitative interviews, one needs to be familiar with patterns and observations of the interviews. The researcher will read and listen to the data collected from the interviews several times to familiarise herself with the research problem and the responses received. This would require the researcher to revisit the research objectives often to ensure that the research questions are answered (Arnett 2002).

4.6 Ethical consideration

According to Leedy and Ormrod (2015), “the ethical guidelines that apply include protection from harm, voluntary and informed consent and the participants’ right to privacy regarding anything they might reveal about themselves”. In terms of protection from harm, the researcher will ensure that participants of the study shall be protected from any form of psychological or physical harm. The researcher will pledge to treat all participants as equals by being respectful, honest and compassionate towards them. If such an event occurs where a participant may become uncomfortable or require a debriefing, then the researcher will provide that or make necessary arrangements for a referral to another professional.

In terms of voluntary and informed consent, upon arrival at the residence the researcher will acquire a verbal consent from the participant before asking any further questions. The researcher will explain the main purpose of the research being conducted and make it clear that the participant may withdraw themselves at any point in time from responding to the questionnaire. With regard to privacy and confidentiality, Maree (2007) emphasises that a clear understanding of confidentiality of information will be known by both the researcher and the residents of Chatsworth. It should be noted that all the responses and findings that are acquired from the participants will be kept strictly private and no names shall be mentioned, to ensure protection of the identity of the participants.

Maree (2007) explains that the Helsinki Declaration of 1972 states that clearance is required from an ethics committee when human subjects are involved in any empirical nature research. A gatekeeper letter has been acquired from the Ward 71 councillor in Chatsworth, giving permission to undertake research in the sample areas.

By acknowledging Strydom and Venter's (2002) statement that "Anyone involved in research needs to be aware of the general agreements about what is proper and improper in research", the researcher will ensure that these ethical guidelines will be followed.

4.7 Validity and reliability

In any type of research, it is crucial to ensure that techniques used are to be valid indicators of the variables under investigation. Validity and reliability in research are vital components and need to be carefully adhered to. There are three types of validity concerns as outlined by Leedy and Ormrod (2015), namely internal validity, external validity and general credibility and trustworthiness. Internal validity is the extent of defensible solutions between variables; external validity is whether the results of the research have the necessary capability of being generalised to a broader context of the population, and general credibility and trustworthiness is the extent of seriousness of responses by individuals. It is important to note that dependability as defined by Durrheim and Wassenaar (2002:64) is the degree to which a reader can be persuaded that the findings correlate with what the researcher says and to what stems from the data.

During the research analysis phase, the researcher will strive to eliminate error as far as possible by employing a member to cross-check results. The researcher aims to produce results that are realistic, credible and convincing and shall also include inconsistent results which will also add to the credibility of the research. A pre-assessment of the questionnaire will be done by the relevant superiors at the university to ensure adequacy of measurement. The research process will be simultaneously reflected upon in order to avoid any bias. In terms of generalisability, Durrheim and Wassenaar (2002) explain this to be the degree to which generalisations from the results can be made to the larger population. Since there are currently seven housing typologies within the study area, the researcher has used a purposeful random selection to select the sample in areas that are rich in context of the specific typology. This will allow for easy generalisation to the remaining sections of the population.

4.8 Storage of data

According to the DUT Guidelines for Research Data Storage (DUT 2021), the researcher is responsible to arrange for safe storage of all data and specimens on which research is based. The budget for the research has included the cost of storage and arrangements will be made for back-up of electronic data sets. The primary data will be stored in the Town Planning Department at the Durban University of Technology. This ensures safety and integrity of the data set. Overall, the Head of the Department is responsible for the safety of stored data. Research on which publications are based will be retained in the department for at least five years. If there is a case where the researcher leaves the university, then the university and the researcher will be responsible to arrange for maintenance of the dataset.

5 Chapter 5: Analysis and results

5.1 Introduction

This chapter presents the analysis and results of the investigation into housing satisfaction levels from the selected case study area of Chatsworth, KwaZulu Natal. It draws from the findings of a sample population of 491 households over three areas: Bayview, Woodhurst and Crossmoor. The province of KwaZulu-Natal consists of a diverse settlement typology and eThekwini is a representation of that on a smaller scale. As mentioned earlier, large townships such as Phoenix and Chatsworth were established in Durban as a result of the Group Areas Act during the apartheid government era. The Group Areas Act sought to separate racial groups by designating areas exclusively for certain races. Chatsworth, which was established in the late 1960s, was a township designated exclusively for the Indian population who were moved from the areas where they lived initially. Chatsworth has today become a mixed socio-economic area still comprising of pockets of areas experiencing poverty and unsatisfactory living conditions (Pillay 2009:02). The settlement patterns seen in these historic areas around eThekwini are a clear illustration of the apartheid jurisdiction legislations. Although eThekwini Municipality has proposed various housing projects for the area such as Lusaka, Bottlebrush, Lamontville Northwest, Bayview, Bayhead site A, Bayhead Site B and Moorton Road Housing Project with the intention of lessening the burden of the housing problem, informal settlements nevertheless continue to grow in and around the area. This is a clear indication that the area is growing rapidly and is open to opportunity for investment and potential growth.

The main objective of this chapter is to draw up findings and to analyse the results based on the relationship between inhabitants and their dwelling units, the neighbourhood that surrounds them and the environmental facilities that are provided. Alongside achieving the objective of the study, the hypothesis of housing deficits in formerly exclusively Indian townships was tested. This chapter used inferential data analysis to examine households in order to understand the relationship between the inhabitants, their dwelling units and the neighbourhood that surrounds them as well as identifying the deficits that they are experiencing.

This chapter is based on both primary and secondary data sources that were part of the study. The primary data in this research were obtained from three sample housing typologies in Chatsworth. These three housing typologies were city owned duplexes and flats which are formal based settlements and informal housing which is an informal settlement. These sample housing typologies are among the oldest in the township and were used as a reflection of Chatsworth. The data obtained was used to ascertain the housing satisfaction levels and needs of the overall study area. The case study suburbs within Chatsworth that were chosen for data collection were Bayview (a formal social housing project consisting of two storey blocks), Woodhurst (a formal social housing project that consists of three-storey walk ups) and Crossmoor (an informal settlement established in the area). The primary data was acquired using structured quantitative surveys that were completed by household members of the sample areas.

The secondary data was obtained from semi-structured interviews that were conducted with stakeholders of the community, which were the councillor and representatives of the sample areas. Based on the historic development and settlement pattern that has occurred over time, the group of people that were chosen were in a good position to comment on the background of the housing situation as well as on the dynamics of the community.

The primary and secondary data collection process encountered various challenges along the way. Firstly, the worldwide pandemic delayed the entire data collection process by six months due to the lockdown restrictions in South Africa. Secondly, the residents of Chatsworth were reluctant to engage and respond with the data collectors due to the pandemic. The study tried to minimise physical contact as much as possible by conducting an electronic survey via the phones of the data collectors. The data collectors asked the questions from a distance and submitted the answers to the survey on their phones. The secondary data collection was trickier and could not be conducted in the same way since more detailed answers were needed to the open-ended questions. Surveys were emailed to the relevant stakeholders who then completed them and emailed them back. Apart from those challenges, there were no others that were faced.

Below is an image that depicts the overall area where Chatsworth is based in KwaZulu Natal.

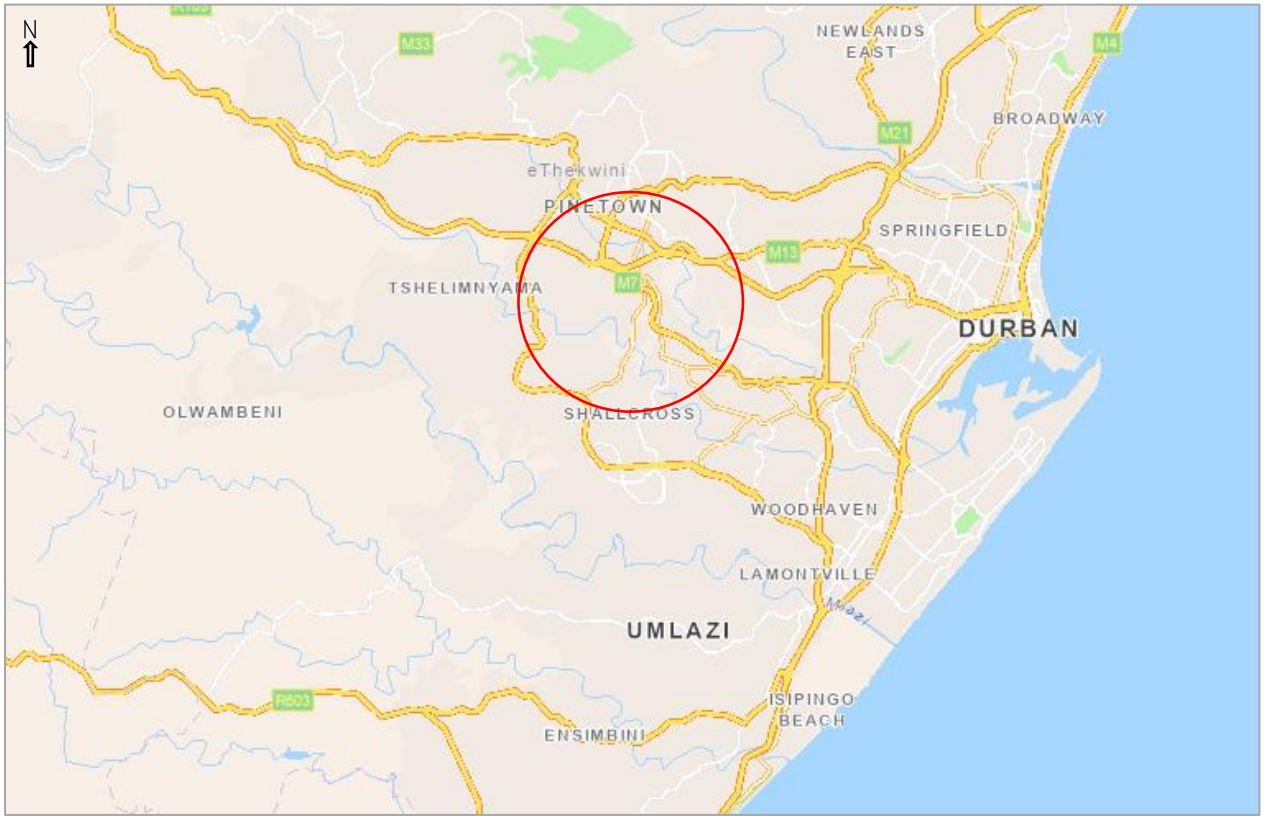
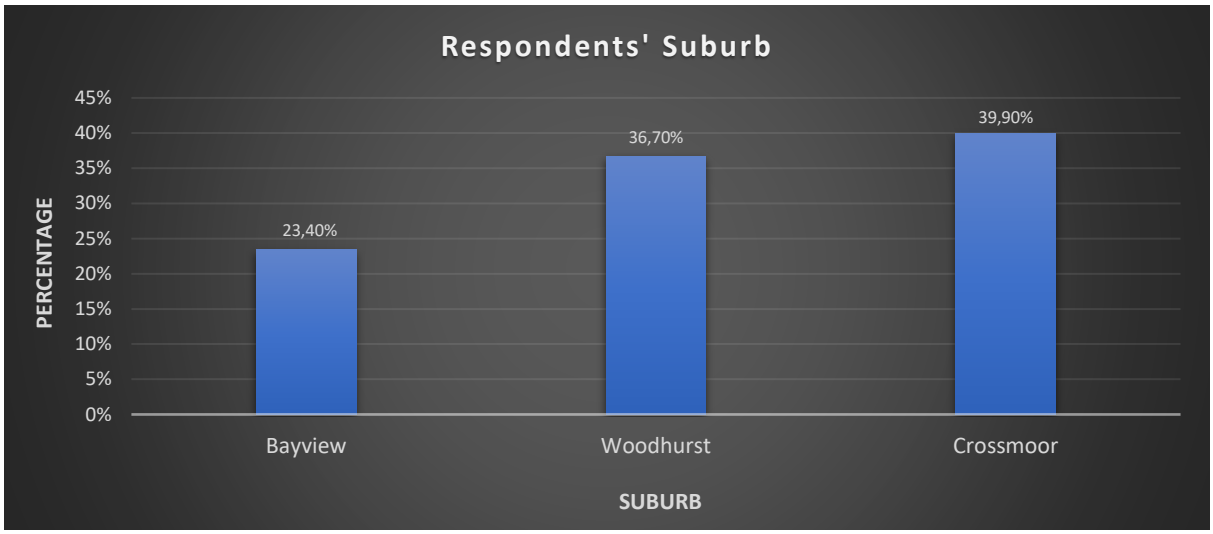


Figure 17: Chatsworth in relation to Durban

5.2 Section 1: Respondents' profile

This section contains the data of the variables of interest pertaining to the respondents' background, which includes the suburbs that the respondents were from, their gender, age and ethnic group.

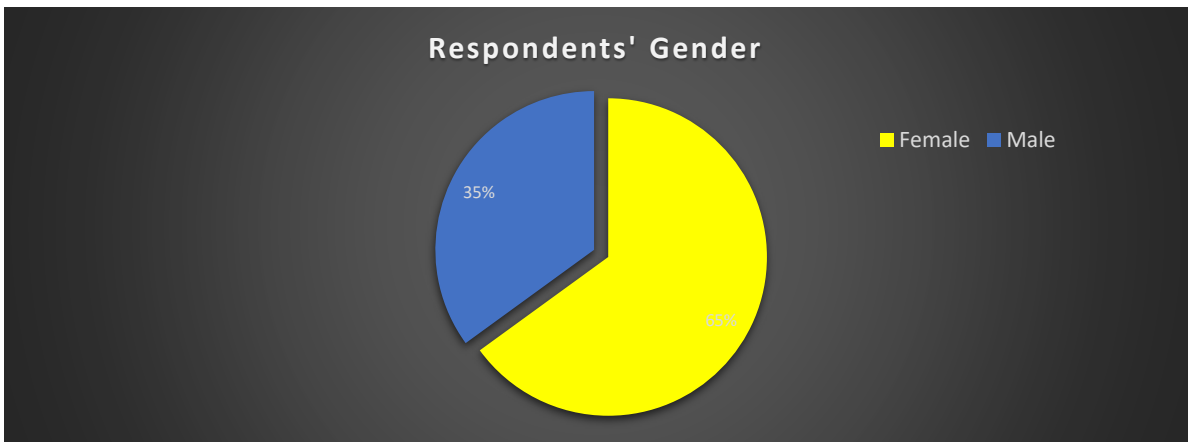
Graph 1: Respondents' suburb



Suburb

The three samples areas used in this study that data was collected from are Bayview, Woodhurst and Crossmoor. The sample population was evenly spread across these three areas. According to the numbers, Bayview comprised 23.4% of the sample, coming from a two-storey social housing project. These two-storey buildings each have 4 one-bedroom units. The Woodhurst social housing project has three-storey flats with 12 units each, making up 36.7% of the sample population, and Crossmoor is a densely populated settlement comprising 39.9% of the sample. Okeyinka (2014) describes housing as a worldwide social necessity of life that is required for both social and economic growth. These three areas were provided with the basic housing that is required for shelter and were the oldest housing typologies in the area. Over the years, the type of housing in these areas changed to upgrade or to better accommodate its inhabitants.

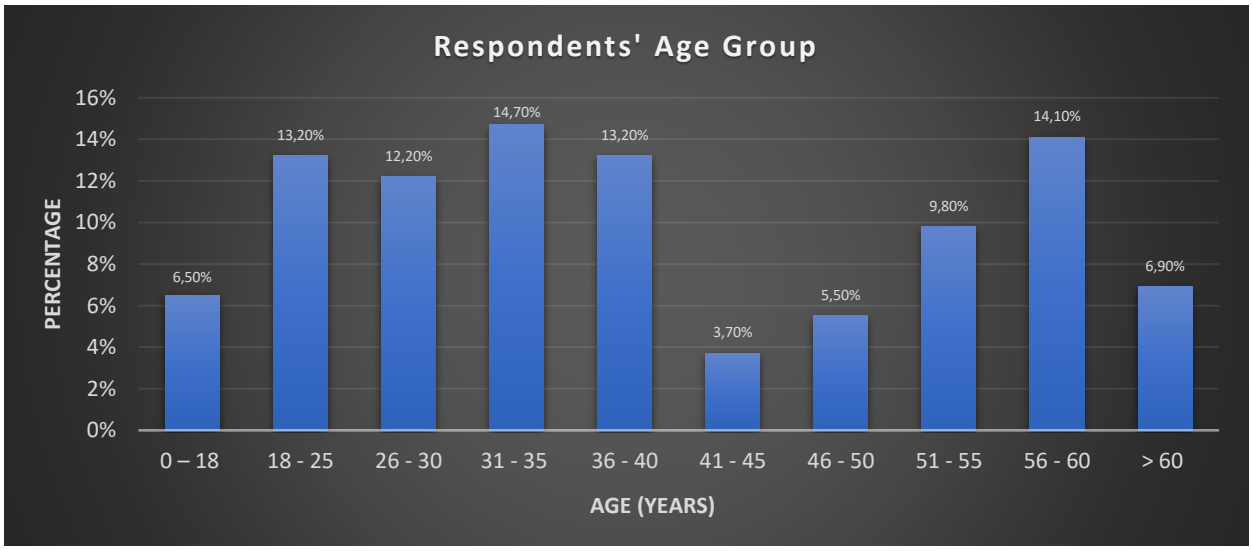
Graph 2: Respondents Gender



Gender

When looking at the responses in terms of gender, the responses were clearly asymmetrical, with approximately two thirds (65%) being female respondents and about one third (35%) being male respondents. The number of responses from females was therefore almost double that of male respondents. The main area of Chatsworth is a combination of seventeen suburbs that cover 42.73 km². According to Census 2011 (StatsSA 2011), there were 52% females and 48% males in Chatsworth; nevertheless, the female response rate was much higher. There are various reasons for this that the data did not consider, including the fact that during the time of the survey there were more females present at home than males, partly because the employment rate of males was higher than that of females. As depicted by the UNICEF (2001), traditional cultural practices for many generations have had the specific traditional belief that females should play the role of nurturer while the male plays the role of breadwinner. Since Chatsworth is a historical township, this could have been a precedent that was set by earlier generations in the cultures present there.

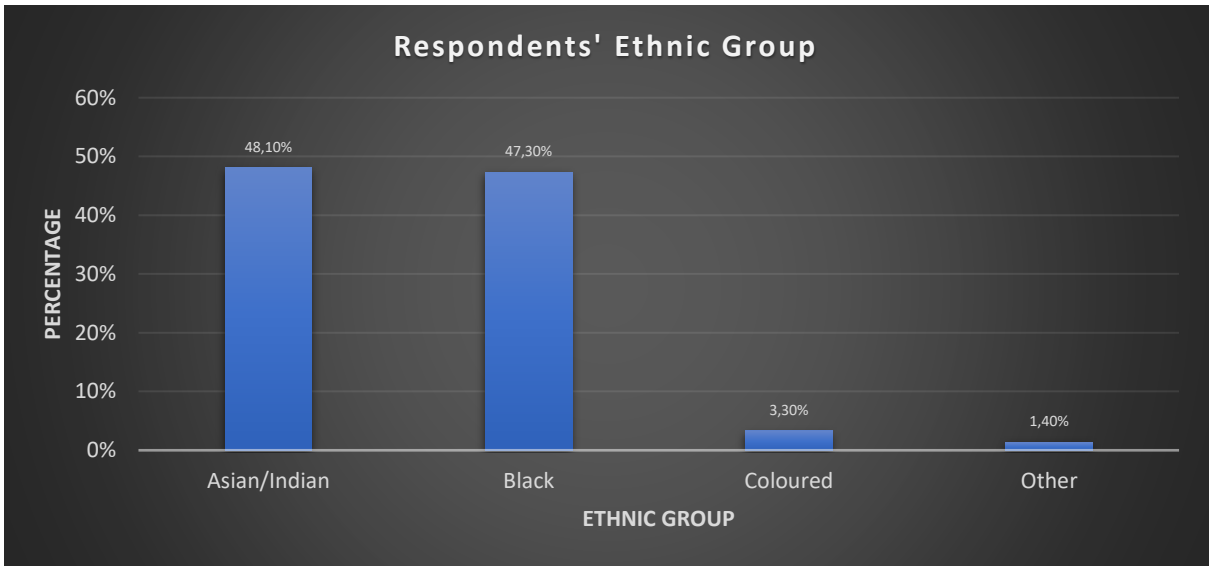
Graph 3: Age group



Age

In terms of the age of respondents, 6,52% were below the age of 18 years, 13,24% were between 18 and 25 years, 12.22% were 26-30 years, 14.66% were between 31 and 35 years and 13.24% were 36-40 years. A low 3.67% of the respondents were 41-45 years, 5.50% were 46-50 years, 9.78% were 51-55 years, 14.05% were 56-60 years and 6.92% were over 60 years of age. The age of respondents varied through the scale however, and there seemed to be a larger number of respondents between the ages of 18 and 40 years old. According to Census 2011 (StatsSA 2011) the largest population group belongs to the age group 15 to 29 years old. This tells us a lot about the demographics in the area, as a significant portion of the population are of school going age and/or young adults.

Graph 4: Ethnic group



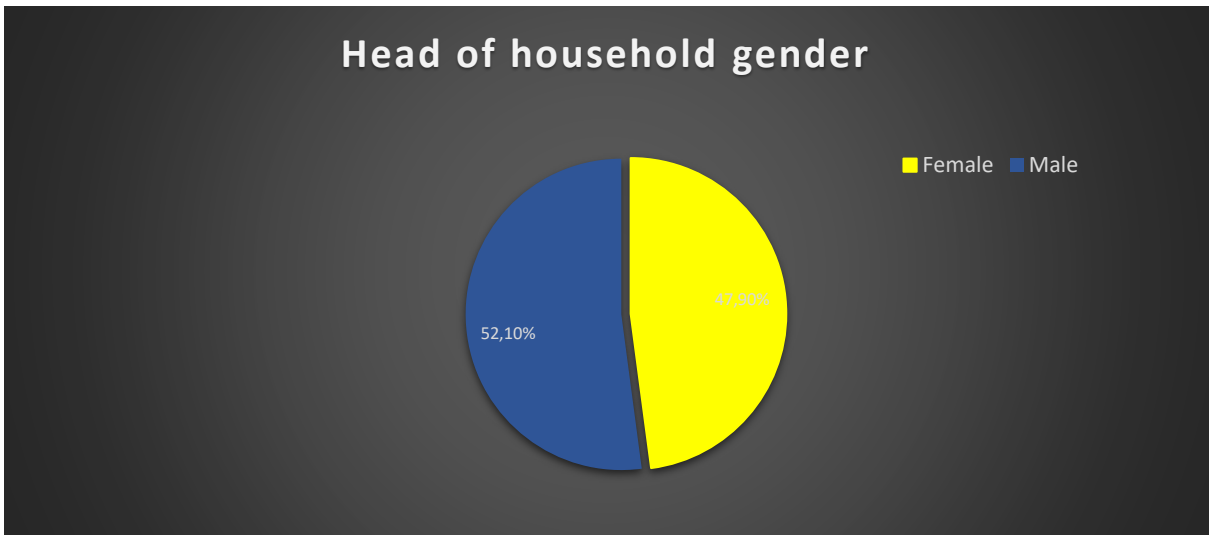
Ethnic group

Approximately half of the respondents (48.07%) regarded themselves as Indian, 47.25% were African/Black, 3.26% were coloured respondents and 1.43% responded as "other". The sample area reported 3 different home languages, with English being dominant at 51.73%, IsiZulu being 46.84% and a low 1.43% being isiXhosa respondents. Historically, the area of Chatsworth was built as an exclusively Indian township; however, over the years various ethnic groups migrated to the area for work or residence and it has now become a multicultural sub-place. Census 2011 (StatsSA 2011), reports a 60% rate of Indians in the area, which percentage has changed over the past 10 years so that currently the Indian and African population groups are almost equal.

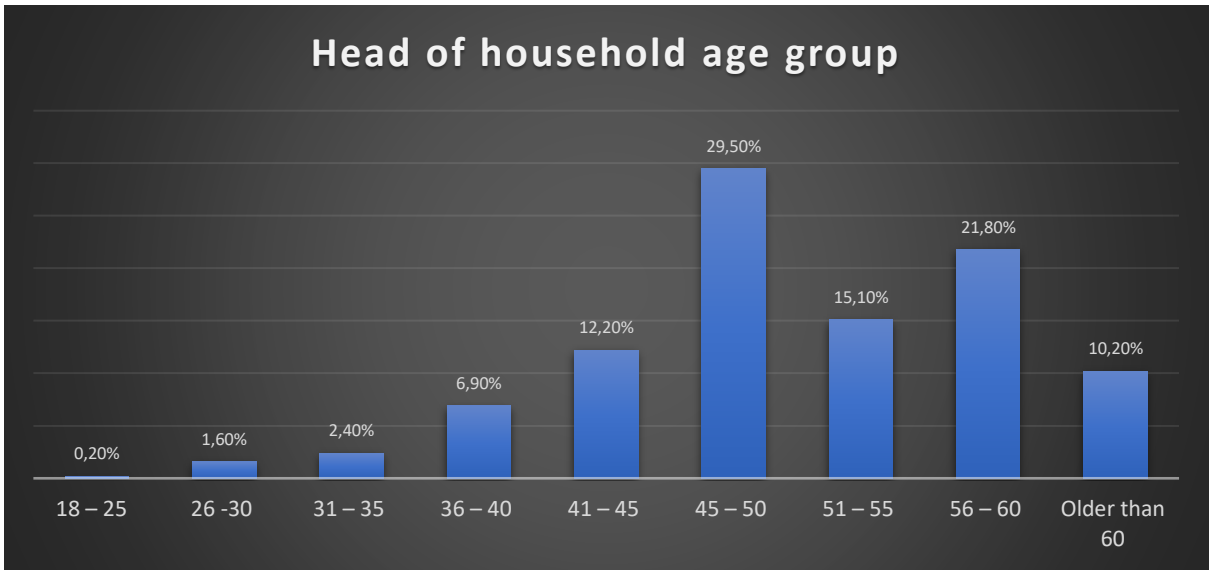
5.3 Section 2: Socio-demographic characteristics

The following section contains results that pertain to the head of the household as well as socio-demographic data which includes their gender, age, estimated monthly income, type of household, income level, size of household and number of incomes.

Graph 5: Head of household gender



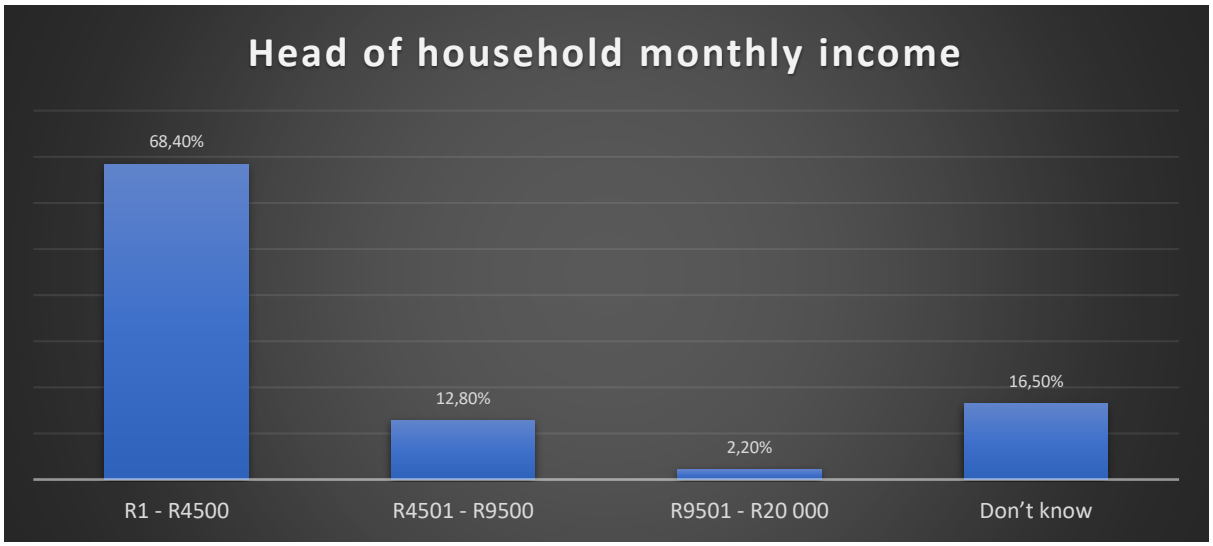
Graph 6: Head of household age



Head of household

The socio-demographic characteristics in relation to heads of household are very interesting, mainly because although we had a 65% female response rate, only a 47.9% of females were the head of the household. This means that there was a total of 52.1% male household heads. The data showed that the majority of heads of household (29.5%) fell within the 45-50 years age group, with the least number (0.2%) being 18-25 years old. 1.63% were 26-30, 2.44% were between 31 and 35, 6.92% were 36-40, 12.22% were 41-45, 15.07% were 51-55, 21.79% were 56-60 and 10.18% were over 60 years of age.

Graph 7: Head of household age

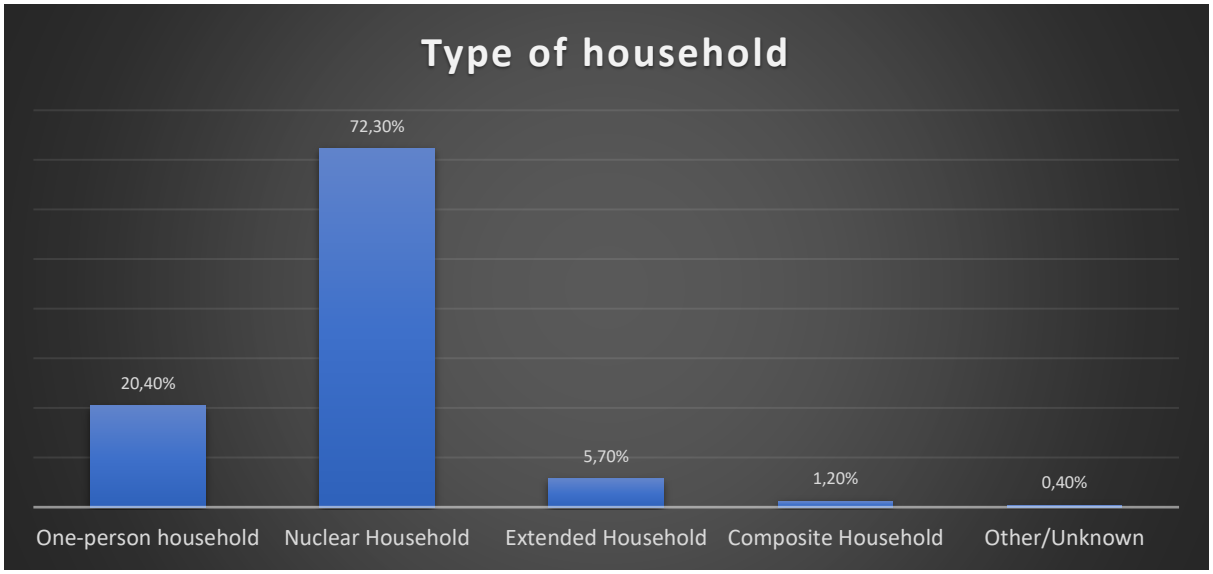


Income group

The majority of the participants' monthly income fell in the R1 – R4500 income group with a total of 68.43%, and a 12.83% had an income of R4501 – R9500 per month. These low-income levels indicate that a lot of incomes were from pensions, social grants, or a low and basic skilled workforce. The 2021 average income rate of South Africa recorded by StatsSA (2011) is R23 982 per month. This average has increased by 3.9% over the past 5 years. Based on the results from the income groups in question,

Chatsworth is seen as a low to medium income area, especially in regard to residents who live in city-owned housing and informal settlements.

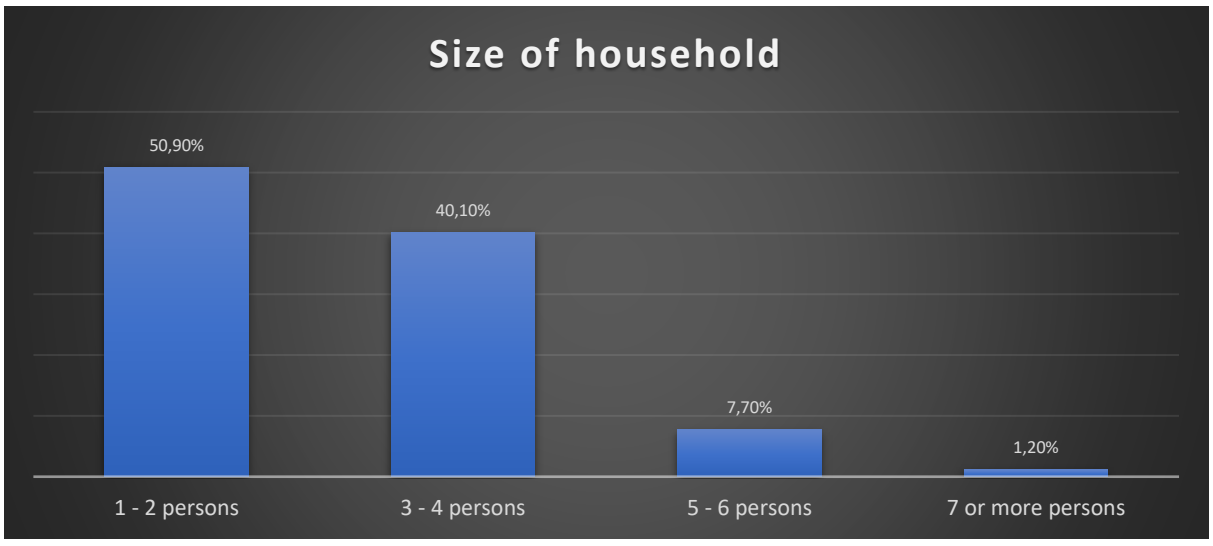
Graph 8: Type of household



Type of household

More than two thirds (72.30%) of the participants were from a nuclear household which consisted of a married couple with/without children, and 20.37% came from a one-person household. About one fifth of the sample population lived alone, about 5.7% lived in an extended household and only 1.2% lived in a composite household.

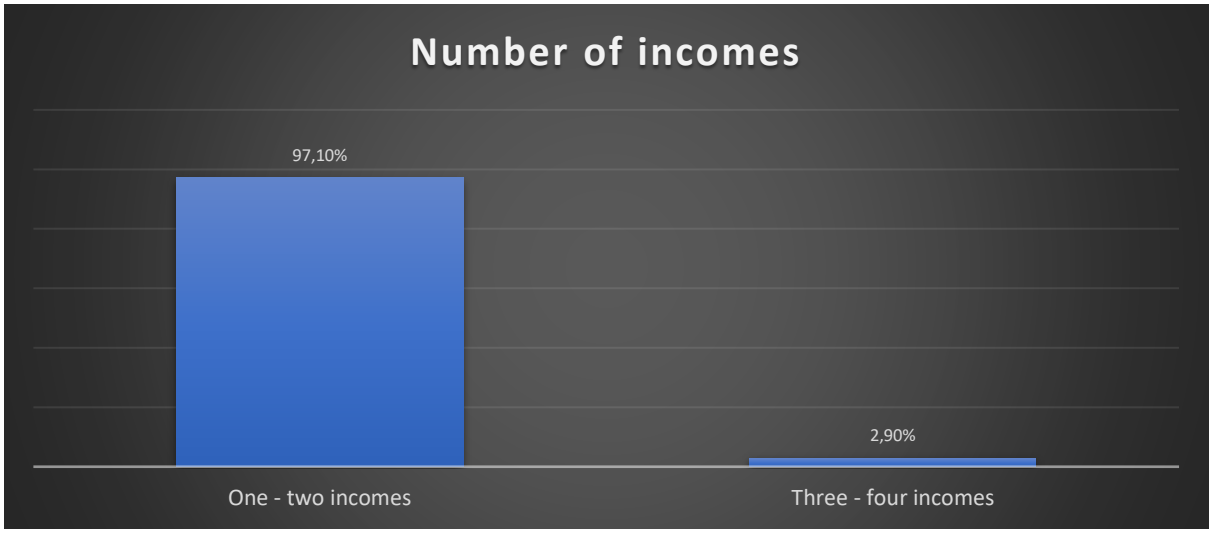
Graph 9: Size of household



Size of household

The majority (82.89%) of the participants had lived in their current dwelling for over 10 years, which indicates that the settlement has been there for quite a while, and 9.78% had lived there for 5-10 years. 6.31% of participants had lived in their current dwelling for 2-5 years and a low 1.02% had lived in their dwelling for less than 2 years. Approximately half of the sample households (50.92%) consisted of 1-2 people, 40.12% consisted of 3-4 people and 1.22% had 7 or more people.

Graph 10: Number of incomes



Number of incomes

A high 97.15% of the sample had one or two incomes and 2.85% had three to four incomes. Most of the sample population had formal employment or received a government grant. 41.55% of the sample had formal employment while 47.66% were subsidised by a government grant. A small portion of 7.33% had informal employment, and 2.24% had an informal business.

5.4 Section 3: Dwelling unit features

The following section shows the data received from respondents about their dwelling unit features, which includes all of the physical features of the house.

Table 1: Dwelling unit features

Variables of interest	
Physical features	**Frequency (%)**
Type of dwelling	
Two-storey council rental stock	23,4%
Three-storey social housing	36,7%
Informal housing	39,9
Number of rooms	
Fewer than 2	52,3%
2-5 rooms	47,7%
People per room	
One person per room	32,6%
Two persons per room	62,1%
Three persons per room	5,3%
Variables of interest	
Physical features	**Frequency (%)**
Type of dwelling	
Two-storey council rental stock	23,4%
Three-storey social housing	36,7%
Informal housing	39,9
Number of rooms	
Fewer than 2	52,3%
2-5 rooms	47,7%
People per room	
One person per room	32,6%
Two persons per room	62,1%
Three persons per room	5,3%

Dwelling unit features

A total of 39.92% of the sample population lived in informal housing, 36.66% in three-storey social housing, and 23.42% in two-storey council rental stock. 52.34% of the households had fewer than 2 rooms and 47.66% had 2 – 5 rooms. The per person-room ratio response indicates that 62.73% of the respondent households had two persons per room, 32.59% had one person per room and 5.30% had three persons per room.

Table 2: Satisfaction with dwelling unit

Satisfaction with dwelling unit					
	Level of Satisfaction				
	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied
Bedroom space	32,6%	14,1%	8,4%	45,0%	0
Kitchen space	13,6%	28,1%	9,2%	49,1%	0
Bathroom space	37,9%	6,3%	10,8%	45,0%	0
Dining space	12,0%	32,0%	8,8%	47,3%	0
Living space	7,1%	35,0%	10,4%	47,5%	0
Plumbing	9,6%	35,0%	8,1%	47,3%	0
Electrical sockets	12,6%	31,4%	3,1%	53,0%	0
Lighting	6,5%	36,3%	2,9%	54,4%	0
Overall size of dwelling	6,9%	37,3%	3,3%	52,5%	0
Ventilation	5,9%	36,7%	2,2%	55,2%	0

Satisfaction with dwelling unit

In terms of bedroom space, 45.01% responded as being satisfied, 32.59% were strongly dissatisfied, 14.05% were dissatisfied and 8.35% responded in a neutral fashion. There is only a 2.63% difference between the households that were satisfied and those that were dissatisfied with bedroom space. Most of the households that responded as being dissatisfied lived in an informal settlement. Their dissatisfaction came from the fact that they were living in small crowded spaces with no proper segregation of rooms. On the other hand, the responses in regard to kitchen space were the opposite. People were more satisfied with kitchen spaces than dissatisfied. 49.08% were satisfied, 28.11% were dissatisfied, 13.65% were strongly satisfied and 9.16% responded neutrally. The responses for bathroom space were almost the same as those for bedroom space. The satisfaction with bathroom space responses indicated that 45.01% were satisfied, 37.88% were strongly dissatisfied, 6.31% were dissatisfied with bathroom space and 10.79% were neutral. 47.25% of the households were satisfied with their dining space whilst 31.98% were dissatisfied, 12.02% were strongly dissatisfied and 8.76% responded as being neutral. In terms of living space, 47.45% were satisfied, 35.03% were dissatisfied, 7.13% were strongly satisfied and 10.39% were neutral.

Responses on satisfaction with the plumbing in the dwelling indicated that 47.25% were satisfied, 35.03% were dissatisfied, 9.57% were strongly dissatisfied and 8.15% were neutral. There was an approximately equal response between satisfied and dissatisfied responses. The following responses for electrical, lighting, ventilation, durability and overall space showed a similar pattern. 52.95% of respondents were satisfied with their electrical sockets whilst 31.36% were dissatisfied and 12.63% were strongly dissatisfied. In terms of lighting, approximately half of the sample, 54.38%, were satisfied, 36.25% were dissatisfied, 6.25% were strongly dissatisfied and 2.85% were neutral. The responses regarding satisfaction with overall dwelling space indicated that 52.55% were satisfied,

37.27% were dissatisfied, 6.92% were strongly satisfied and 3.26% responded neutrally. Satisfaction with ventilation in the dwelling showed that 55.19% were satisfied, 36.66% were dissatisfied, 5.91% were strongly dissatisfied and 2.24% responded neutrally. In terms of durability of the dwelling unit, 51.93% agreed that their dwelling unit was able to withstand weather conditions, 40.53% disagreed, 3.46% strongly disagreed and 1.63% strongly agreed on dwelling unit durability. Based on the responses received from the sample population, it is clear that half of the sample were satisfied overall with their dwelling unit features and approximately half were dissatisfied/strongly dissatisfied. In terms of the literature review, Ibem and Aduwo (2013) found a lower level of satisfaction in Nigeria, particularly coming from the washing and drying areas, electrical sockets, bathroom facilities, lighting, refuse, and security of the dwelling.

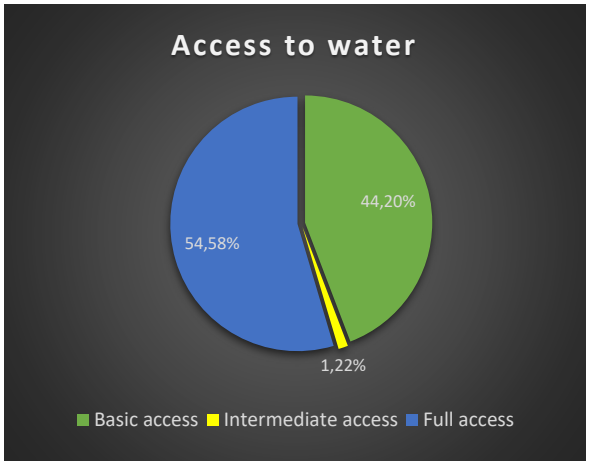
Yard space, household size and tenure

60.29% of the respondents were neutral when asked about their satisfaction with private yard space, while 31.98% responded that they were dissatisfied and 7.74% were strongly dissatisfied. In terms of size of the dwelling in accordance with the number of members in the household, 84.93% were satisfied with the size, 7.13% were dissatisfied, 5.30% were strongly dissatisfied and 2.65% responded in a neutral fashion. In terms of secure tenure and ownership of dwelling units, 83.91% had title deeds, 8.35% had long term leases and 7.74% were renting. Although a majority of the sample population held a title deed, there was still a low satisfaction rate in these households, which is contrary to what Lu (1999) asserts about satisfaction and tenure. Tan and Kong (2012) and Kaitilla (1993) support Lu (1999) by explaining that homeowners have a higher satisfaction rate because they feel psychologically proud. This assumption is also supported by McCarthy et al. (2001) and various other researchers who believe that homeownership provides greater security and financial advantage over renting thus increasing the overall housing satisfaction rate.

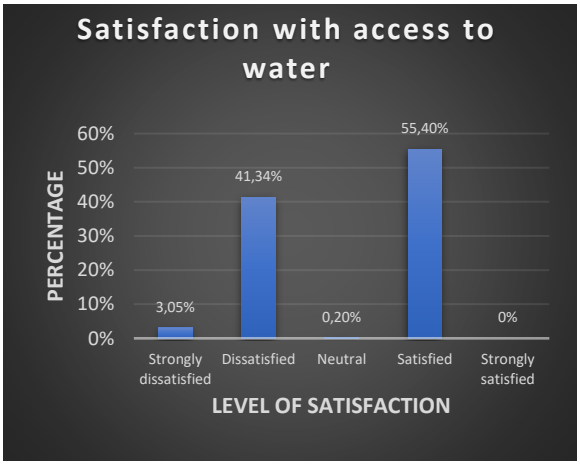
5.5 Section 4: Housing support service

The following sections outline the access to basic services for the sample households and the satisfaction levels with these services.

Graph 11: Access to water



Graph 12: Satisfaction with access

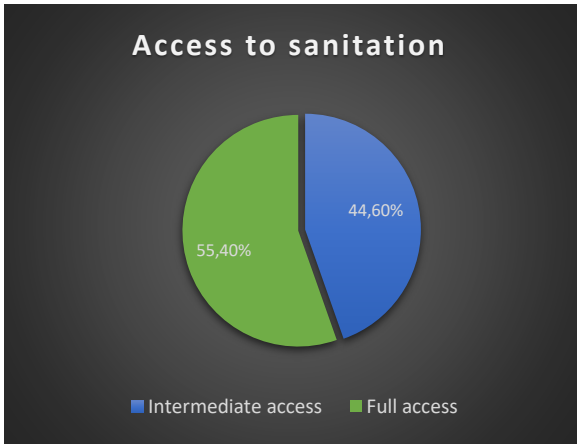


Water

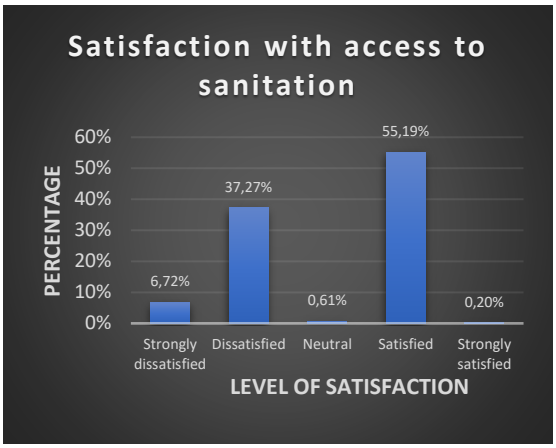
Access to clean water: 54.58% had full access, which implies piped water inside the dwelling, 44.20% has basic access which is a communal tap, and 1.22% has intermediate access which is piped water on site.

Approximately half of the sample population, 55.04%, were satisfied with their access to water, 41.34% were dissatisfied, 3.05% were strongly dissatisfied and 0.20% were neutral.

Graph 13: Access to sanitation



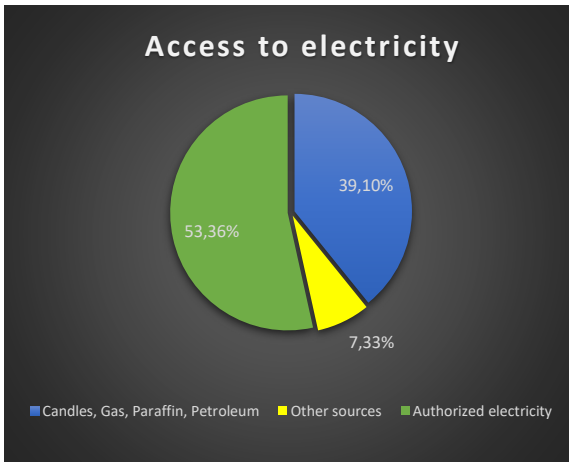
Graph 14: Satisfaction with access



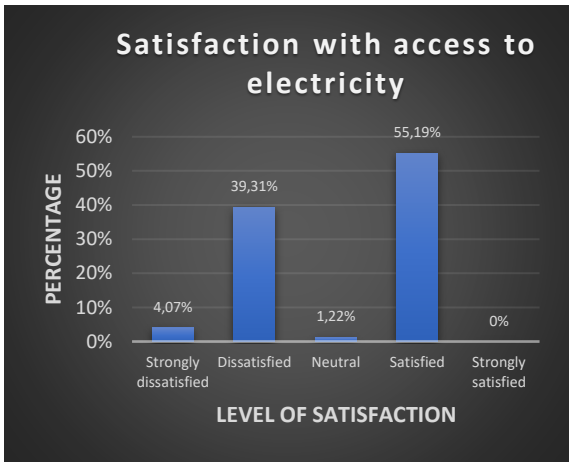
Sanitation

Access to sanitation: 55.04% had full access which is a flush toilet inside the dwelling, and 44.60% had intermediate access, with a communal flush toilet. Approximately half of the sample, 55.19%, were satisfied, 37.27% were dissatisfied and 6.72% were strongly dissatisfied. A low 0.20% responded as being strongly satisfied.

Graph 15: Access to electricity



Graph 16: Satisfaction with access



Electricity

Access to electricity responses indicated that 53.36% of the respondents used authorised electricity supplied to the dwelling unit, with 39.10% using candles, gas and/or petroleum, and 7.33% using unauthorised electricity from another source. 55.19% of the respondents were satisfied with their access to electricity, 39.31% were dissatisfied, 4.07% were strongly dissatisfied and 1.22% responded neutrally.

5.6 Section 5: Public facilities

The following section presents satisfaction with public facilities.

Table 3: Satisfaction with public facilities

Satisfaction with public facilities					
	Level of Satisfaction				
	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied
Healthcare facilities	5,09%	9,37%	15,48%	70,06%	0
Educational facilities	2,04%	10,18%	14,46%	73,32%	0
Social facilities	3,67%	13,65%	14,87%	62,82%	0
Public open spaces	3,67%	14,87%	10,79%	70,67%	0
Public transportation	2,04%	9,37%	15,68%	72,91%	0

Public facilities

A majority of 70.06% of the sample population were satisfied with the healthcare facilities in the area, 5.09% were strongly dissatisfied and 9.37% were dissatisfied. In terms of education, 73.32% were satisfied with educational facilities in the area, 10.18% were dissatisfied, 2.04% were strongly dissatisfied, with 14.46% remaining neutral. In terms of social environment, 67.82% were satisfied with the social facilities in the area, 13.65% were dissatisfied, 3.67% were strongly dissatisfied and 14.87% were neutral. 70.67% respondents were satisfied with the public open spaces in the area, 14.87% were dissatisfied, 3.67% were strongly dissatisfied and 10.79% responded neutrally. Satisfaction with transportation responses showed that 72.91% of the respondents were satisfied with public transportation while only 9.37% were dissatisfied. 2.04% were strongly dissatisfied and 15.68% remained neutral.

5.7 Section 6: Neighbourhood facilities

The following section presents satisfaction with neighbourhood facilities.

Table 4: Satisfaction with neighbourhood facilities

Satisfaction with neighbourhood facilities					
	Level of Satisfaction				
	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied
Sports and recreational facilities	3,7%	12,8%	13,6%	69,5%	0
Level of safety	19,8%	15,5%	18,7%	45,6%	0
Tackling crime	32,8%	18,9%	18,3%	29,5%	0
Pollution levels	5,7%	11,2%	23,4%	59,5%	0

Neighbourhood facilities

Satisfaction with sports and recreation facilities indicated that 69.45% were satisfied with sports and recreational facilities in the area, 12.83% were dissatisfied, 4.07% were strongly dissatisfied and 13.65% responded as being neutral. In terms of safety, 45.62% were satisfied with the level of safety in the area, 15.48% were dissatisfied, 20.16% were strongly dissatisfied and 15.48% responded neutrally. Only 29,5% of the sample population were satisfied with crime being addressed in the area. A total of 32,8% were dissatisfied, 18,9% were dissatisfied and 18,3% were neutral. In terms of pollution levels, 59,5% were satisfied which means that pollution may not be a major problem in the area; however, 5,7% responded as being strongly dissatisfied, 11,2 were dissatisfied and 23,4% had a neutral response.

5.8 Section 7: Social environment

The following section presents the respondents' levels of satisfaction with the social environment.

Table 5: Social environment

Satisfaction with the social environment					
	Level of satisfaction				
	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied
Early childhood development facilities	5,1%	17,1%	13,6%	61,1%	0
Youth facilities	4,3%	17,5%	19,1%	58,7%	0
Community facilities (halls and centres)	5,9%	11,4%	13,2%	69,0%	0
Social facilities (bars and cafes)	5,5%	10,2%	14,7%	69,2%	0
Retail facilities (malls and shops)	1,6%	8,1%	14,1%	75,8%	0

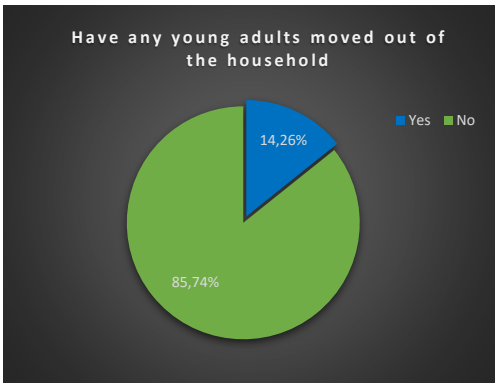
Social environment

From the data collected, it was clear that 61.10% were satisfied with the early childhood development centres in the area, 17.52% were dissatisfied, 5.09% were strongly dissatisfied and 16.29% indicated that they were neutral on this matter. In terms of satisfaction with the community facilities in the area, 69.04% were satisfied with the facilities, 11.41% were dissatisfied, 5.91% were strongly dissatisfied and 13.65% responded as being neutral. A total of 69.25% of the respondents were satisfied with the social facilities in the area, 10.18% were dissatisfied, 5.50% were strongly dissatisfied and 15.07% gave neutral responses. Responses towards satisfaction with retail facilities showed that 75.76% were satisfied, 8.15% were dissatisfied, 1.63% were strongly dissatisfied and 14.46% indicated that they were neutral.

5.9 Section 8: Behavioural characteristics

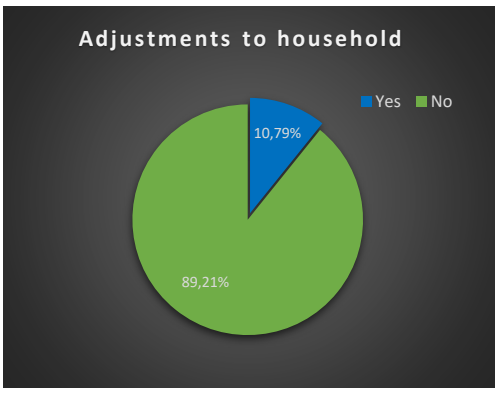
The following section presents the analysis of the respondents' behavioural characteristics in respect of their dwelling unit and the changes that occur.

Graph 16: Migration from household



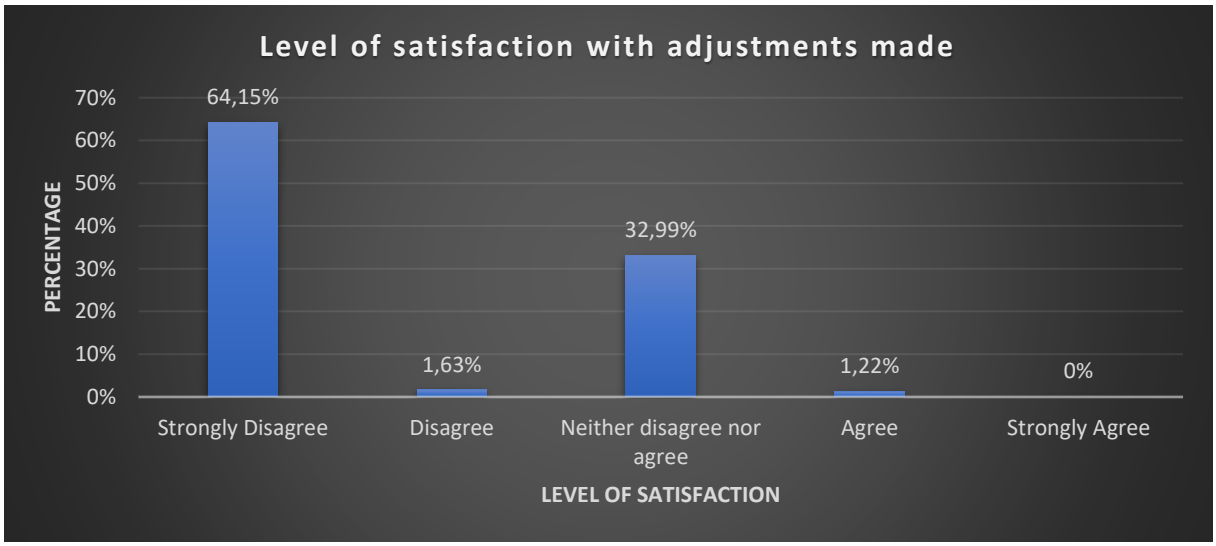
In terms of behavioural characteristics, 85.74% of the respondents replied No when asked if any young adults had moved out of the household and 14.26% responded that Yes, they had. Reasons for the migration out of the household included marriage (7.74%), international move (0.81%), local move (2.44%) and 85.74% refused to answer.

Graph 17: Physical changes/adjustments to dwelling unit



In terms of physical changes to the dwelling, only 10.79% had made adjustments to the household whilst 89.21% had not made any adjustments. The main changes that were made were doors, windows, floors, plumbing and extensions to the household. The major reasons for these adjustments were because they were damaged or the household needed more space. Not many people in the area had made adjustments to their dwelling, which could be because this was not affordable, there was not enough yard space, or simply because there wasn't a need.

Graph 18: Level of satisfaction with adjustments



Satisfaction with level of adjustments

When asked if these adjustments had increased the level of overall satisfaction, 64.15% strongly disagreed, 1.63% disagreed, 1.22% agreed and 32.99% neither disagreed nor agreed. From the chart above, it is clear that although the adjustments were made by 10,79% of the sample population, it made almost no difference to the satisfaction level of the households.

5.10 Section 9: Cross-tabulation between variables of interest

The purpose of the cross-tabulation section is to identify and analyse relationships between variables of the data collected. This will help us understand the correlation between the variables. The p-value obtained from the cross tabulation in the following tables were all below 0.05 which is considered statistically significant.

Table 6: Cross tabulation between variables of interest and suburb

Variable of interest		Suburb		
		Bayview	Woodhurst	Crossmoor
Level of satisfaction with the overall size of your dwelling unit/house	Chi-square = 0.000	**115 (23.4%)**	**180 (36.7%)**	**196 (39.9%)**
Strongly dissatisfied		9 (1.8%)	4 (0.8%)	21 (4.3%)
Dissatisfied		6 (1.2%)	8 (1.6%)	169 (34.4%)
Neutral		5 (1.0%)	5 (1.0%)	6 (1.2%)
Satisfied		95 (19.3%)	163 (33.2%)	0 (0.0%)
Strongly satisfied		0 (0.0%)	0 (0.0%)	0 (0.0%)
Level of satisfaction with household durability	Chi-square = 0.000	**115 (23.4%)**	**180 (36.7%)**	**196 (39.9%)**
Strongly dissatisfied		1 (0.9%)	0 (0.0%)	16 (3.3%)
Dissatisfied		9 (1.8%)	13 (2.6%)	177 (36.0%)
Neutral		6 (1.2%)	3 (0.6%)	3 (0.6%)
Satisfied		93 (18.9%)	162 (33.0%)	0 (0.0%)
Strongly satisfied		6 (1.2%)	2 (0.4%)	0 (0.0%)

Cross tabulation between variables of interest and suburb

The chi-square test for the above tablederived a p-value of 0.000 resulting in it being significant.In terms of satisfaction with the overall size of the dwelling unit, the majority of the sample population in Bayview social housing and Woodhurst social housing are satisfied with the size. However, there is a negative response from Crossmoor. These responses are justified by the informal housing typology which is normally smaller and denser than a formal dwelling. Informal housing is normally not constructed from proper construction materials or with proper engineering, resulting in these houses being much smaller and less durable in severe weather conditions. Many informal settlements begin as housing projects with RDP houses and then progress into larger dense settlements due to the lack of land availability. The large number of people in these small dwellings results in overcrowding, thus contributing to the dissatisfaction in regard to the overall size of the household. Amole (2009) explains that if housing does not meet the expected society norms then dissatisfaction is likely to occur. In such instances this includes the size of the house, its durability and the basic features of the house. Adebayo and Iweka (2014) established that the reason for dissatisfaction in African housing is mainly based on overcrowding in low-income housing. Therefore, the structural attributes of the house are a significant factor in housing satisfaction (Hipp 2010).

A similar response rate for dwelling unit size was received for the durability of the dwelling. According to Pérez et al. (2017), the standard building materials for social housing are red brick for walls, roof slabs and single glazing for windows, which implies that these houses are durable and able to withstand severe weather conditions. However, informal settlements have a makeshift nature which normally does not meet building or land use regulations. In most cases building materials such as sheets of metal or tin, cardboard and plastic are used for these structures (Wekesa et al. 2011). This would justify the number of negative responses received in regard to the overall size and durability of structures in informal settlements.

Table 7: Cross tabulation between variable of interest and household type

Variable of interest		Household type				
		One-person household	Nuclear household	Extended household	Composite household	Other
Number of rooms in dwelling unit	Chi-square = 0.000	**100 (20,40%)**	**355 (72,30%)**	**28 (5,70%)**	**6 (1,20%)**	**2 (0,40%)**
Less than 2 rooms		91 (18,50%)	153 (31,20%)	12 (2,40%)	1 (0,20%)	0 (0%)
2 - 5 rooms		9 (1,80%)	202 (41,10%)	16 (3,30%)	5 (1,00%)	2 (0,40%)
Household per-person room ratio	Chi-square = 0.000	**100 (20,40%)**	**355 (72,30%)**	**28 (5,70%)**	**6 (1,20%)**	**2 (0,40%)**
One person per room		36 (7,30%)	116 (23,60%)	8 (1,60%)	0 (0%)	0 (0%)
Two persons per room		62 (12,60%)	223 (45,40%)	16 (3,30%)	2 (0,40%)	2 (0,40%)
Three persons per room		2 (0,40%)	16 (3,30%)	4 (0,80%)	4 (0,80%)	0 (0%)
			355 (72,30%)	**28 (5,70%)**	**6 (1,20%)**	**2 (0,40%)**

Level of satisfaction with current bedroom spaces	Chi-square = 0.005	**100 (20,40%)**				
Strongly dissatisfied		40 (8,10%)	105 (21,40%)	10 (2,0%)	5 (1,0%)	0 (0%)
Dissatisfied		15 (3,10%)	51 (10,40%)	1 (0,20%)	0 (0%)	2 (0,40%)
Neutral		4 (0,80%)	34 (6,90%)	3 (0,60%)	0 (0%)	0%
Satisfied		41 (8,40%)	165 (33,60%)	14 (2,90%)	1 (0,20%)	0 (0%)
Strongly satisfied		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Level of satisfaction with current kitchen spaces	Chi-square = 0.001	**100 (20,40%)**	**355 (72,30%)**	**28 (5,70%)**	**6 (1,20%)**	**2 (0,40%)**
Strongly dissatisfied		18 (3,70%)	38 (7,70%)	7 (1,40%)	4 (0,80%)	0 (0%)
Dissatisfied		34 (6,90%)	95 (19,30%)	6 (1,20%)	1 (0,20%)	2 (0,40%)
Neutral		7 (1,40%)	37 (7,50%)	1 (0,20%)	0 (0%)	0 (0%)
Satisfied		41 (8,40%)	185 (37,70%)	14 (2,90%)	1 (0,20%)	0 (0%)
Strongly satisfied		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Level of satisfaction with current bathroom spaces	Chi-square = 0.000	**100 (20,40%)**	**355 (72,30%)**	**28 (5,70%)**	**6 (1,20%)**	**2 (0,40%)**
Strongly dissatisfied		51 (10,4%)	122 (24,8%)	12 (2,4%)	1 (0,2%)	0 (0%)
Dissatisfied		2 (0,4%)	22 (4,5%)	1 (0,2%)	4 (0,8%)	2 (0,4%)
Neutral		6 (1,2%)	46 (9,4%)	1 (0,2%)	0,0%	0 (0%)
Satisfied		41 (8,4%)	165 (33,6%)	14 (2,9%)	1 (0,2%)	0 (0%)
Strongly satisfied		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Level of satisfaction with current dining spaces	Chi-square = 0.002	**100 (20,40%)**	**355 (72,30%)**	**28 (5,70%)**	**6 (1,20%)**	**2 (0,40%)**
Strongly dissatisfied		21 (4,3%)	34 (6,9%)	4 (0,8%)	0 (0%)	0 (0%)
Dissatisfied		35 (7,1%)	105 (21,4%)	10 (2,0%)	5 (1,0%)	2 (0,4%)
Neutral		3 (0,6%)	40 (8,1%)	0 (0%)	0 (0%)	0 (0%)
Satisfied		41 (8,4%)	176 (35,8%)	14 (2,9%)	0,2%	0 (0%)
Strongly satisfied		0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Cross tabulation between variables of interest and household type

The table above presents the cross tabulation of the variables of interest with the different household types. The p-value derived from this set of data ranges between 0.000-0.005 resulting in it being significant. The majority of people in the sample living in nuclear households had 2-5 bedrooms and among these households there were two persons per room. A nuclear household can be described as a household consisting of a couple with/without children. A significant number of nuclear households have 2 persons per room. Traditional RDP housing or informal settlements normally consist of a single room that is demarcated into various spaces. Adebayo and Iweka (2014), based their study on low-income prototype housing in Nigeria, and found that low income housing, similar to RDP housing, is designed without the consideration of occupancy resulting in dwelling space deficits. McCown (1977) found a negative relationship between person-per-room ratio and housing satisfaction.

Approximately one third of nuclear households were satisfied with their bedroom space, but one third were also dissatisfied. Similarly, approximately 41 one-person households were satisfied with their bedroom and a further 40 were dissatisfied. The majority of nuclear households were satisfied with their kitchen, bathroom and dining spaces but a significant number were also dissatisfied. This dissatisfaction with household spaces was mostly experienced from the informal housing in Crossmoor that generally had only one room. A large number of one-person households were also dissatisfied with their bedroom, kitchen, bathroom and dining spaces but there was also a significant number who were satisfied with it. It should also be noted that most extended and composite households are dissatisfied with household spaces. In parts of Nigeria, Aduwo (2013) found that people who rent have a lower satisfaction rate than homeowners, and this is because renters are restricted from making adjustments and alterations to the dwelling.

Table 8: Cross tabulation between variables of interest and monthly income of household head

Variable of interest		Monthly income			
		R 1 - R 4 500	R 4 501 - R 9 500	R 9 501 - R20 000	Don't know
Level of satisfaction with healthcare facilities	Chi-square = 0.000	**334 (68,30%)**	**63 (12,90%)**	**11 (2,20%)**	**81 (16,60%)**
Strongly dissatisfied		22 (4,5%)	0 (0,0%)	1 (0,2%)	0 (0,0%)
Dissatisfied		32 (6,5%)	12 (2,5%)	0 (0,0%)	2 (0,4%)
Neutral		55 (11,2%)	13 (2,7%)	0 (0,0%)	8 (1,6%)
Satisfied		225 (46,0%)	38 (7,8%)	10 (2,0%)	71 (14,5%)
Strongly dissatisfied		0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)
Level of satisfaction with educational facilities	Chi-square = 0.001	**334 (68,30%)**	**63 (12,90%)**	**11 (2,20%)**	**81 (16,60%)**
Strongly dissatisfied		8 (1,6%)	0 (0,0%)	0 (0,0%)	0 (0,0%)
Dissatisfied		36 (7,4%)	12 (2,5%)	0 (0,0%)	2 (0,4%)
Neutral		44 (9,0%)	13 (2,7%)	0 (0,0%)	14 (2,9%)
Satisfied		246 (50,3%)	38 (7,8%)	11 (2,2%)	65 (13,3%)
Strongly dissatisfied		0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)
Level of satisfaction with social facilities	Chi-square = 0.004	**334 (68,30%)**	**63 (12,90%)**	**11 (2,20%)**	**81 (16,60%)**
Strongly dissatisfied		16 (3,3%)	0 (0,0%)	0 (0,0%)	0 (0,0%)
Dissatisfied		52 (10,6%)	12 (2,5%)	1 (0,2%)	2 (0,4%)
Neutral		46 (9,4%)	13 (2,7%)	0 (0,0%)	14 (2,9%)
Satisfied		220 (45,0%)	38 (7,8%)	10 (2,0%)	65 (13,3%)
Strongly dissatisfied		0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)
Level of satisfaction with public transportation	Chi-square = 0.001	**334 (68,30%)**	**63 (12,90%)**	**11 (2,20%)**	**81 (16,60%)**
Strongly dissatisfied		8 (1,6%)	0 (0,0%)	0 (0,0%)	0 (0,0%)
Dissatisfied		30 (6,1%)	12 (2,5%)	2 (0,4%)	2 (0,4%)
Neutral		50 (10,2%)	15 (3,1%)	4 (0,8%)	8 (1,6%)

Satisfied	246 (50,3%)	36 (7,4%)	5 (1,0%)	71 (14,5%)
Strongly dissatisfied	0 (0,0%)	0 (0,0%)	0 (0,0%)	0 (0,0%)

Cross tabulation between variables of interest and monthly income of household head

The table above shows the cross tabulation of variables of interest and monthly income. The p-value derived from these cross tabulations remains below 0.005, deeming it significant. Firstly, approximately two thirds of the sample population earned up to R4500 a month. Immediately we notice that a large portion of the sample population belong to the low-medium income group. Most of the people within this income bracket were satisfied with the surrounding healthcare facilities, the social environment, the educational environment and the public transportation. The people in this income bracket also expressed some dissatisfaction with these facilities and the reason for this could be direct access or cost of these facilities. At such a low monthly income, the cost of healthcare, education and public transportation can be seen as an additional liability to the household's expenses. Approximately 50% of the R4501-R9500 income group were also satisfied with the surrounding facilities. However, there is still a small portion that were dissatisfied, and the above reasoning can be applied here again. Only about 2% of the sample population fell within the income bracket of R9501-R20000 and the majority of these were satisfied with these facilities.

Ukoha and Beamish (1997) found a similar outcome in their study on public housing of Abuja, Nigeria, where they found a positive satisfaction response towards neighbourhood facilities. They concluded that although conditions in the houses may be unsatisfactory, the neighbourhood and public facilities were well maintained and of satisfactory levels.

5.11 Section 10: Discussion of findings

Demographics

The sample population data was randomly chosen from three areas in the suburb of Chatsworth. These three areas were Bayview, Woodhurst and Crossmoor. The sample consisted of random households from the three oldest settlement typologies in Chatsworth. According to the Community Survey (2016), the population of eThekwini is 3 708 231 people and growing. Census 2011 recorded the population of Chatsworth to be 196 580 in 54 497 households, spread over an area of 42.73 square kilometres. The sample population accounted for 1% of the total number of households in Chatsworth. The gender contrast in Chatsworth as a whole is asymmetrical by 4% of the population, however, during the time that the survey was conducted there were more female respondents than male. This tells us that there are more males of working age who are employed than females or that, in most households, the male is the head of the household. In terms of age groups, the dominant age group in Chatsworth is from 15-29 years, with a large number of respondents coming from the 31 -35 years and the 56-60 years' group. There is not much diversity in the area of Chatsworth since the ethnicity showed a close equilibrium between Asian/Indians and Black African. eThekwini as a whole has 51,1% Black African, 8.6% Coloured, 24% Indian and 15,3% White. The sample respondents' ethnicity derived from the study shows 48% Indians and 47% Black African, which supports the fact that a large number of Durban Indians reside in the Chatsworth area thus deeming it a historically Indian township.

Physical features of the house

As outlined in detail above, the concept of residential satisfaction is based on three main theories, the housing needs theory, the housing deficit theory and the psychological construct theory. These three theories were used in order to determine the overall satisfaction that residents have with their households, services and environment. The characteristics of the household typologies indicate that the household structures are old and are still serviced by the municipality. The social housing projects were created as a way to provide basic housing with an increased density to the population. In terms of the objectives of the study, the aim was to establish the relationship between the inhabitants and their dwelling unit, the neighbourhood characteristics and the environmental characteristics. The results of the study indicate that most people were satisfied with their current dwelling unit. Their indoor spaces such as bedroom, bathroom, kitchen, dining and living spaces showed an average 47% satisfaction rate. Dwelling unit features as explained by Mohit et al. (2010), such as internal spaces, ventilation and drying areas play a vital role in housing satisfaction and the overall desirability of the house.

There are mostly 1-4 persons in a household, which would support the response of the internal dwelling space. These housing typologies are historic and most of these families have been living there for many years, therefore their perception of housing is mainly fixated on what they initially received. The housing needs theory, according to Rossi (1955), indicates that dissatisfaction occurs when households expand and, in most cases, internal dwelling space becomes an issue. In terms of the objectives of the study, and the responses received from the informal areas, normally an additional dwelling is erected close to the main household to accommodate any extension of the family. The percentage of dissatisfied residents is almost equal to the number of satisfied residents. This shows that approximately half of the sample population are not satisfied with their internal dwelling space. Given the responses from the community stakeholders, there was a clear indication that there may be an overcrowding predicament in some households, which accounted for the 8.9% that had 5+ persons living in a single household.

In the social housing areas, most units are one-bedroom dwellings, which seemed to be sufficient for the 51% of households that have 1-2 persons. However, dissatisfaction with space can occur when there are more than two people in the household. This accounts for the 49% dissatisfaction level that provided a negative response. The cross tabulation between the suburb and overall satisfaction with the dwelling unit size showed that people living in the Bayview and Woodhurst areas are generally satisfied with their dwelling unit size, whereas the most dissatisfaction responses came from those living in informal housing. This also feeds into the durability of the household, where houses in Crossmoor were far less durable than those in the other areas.

Mohit et al. (2010), in their study in Malaysia, also explain that public housing not only has a quantitative barrier in terms of the number provided, but also a qualitative barrier that does not meet the basic demands for the low-income groups.

Housing support services

In terms of basic services to the dwelling unit, just over half of the sample population were satisfied with the water, electricity and sanitation services provided to them. These responses were derived

mainly from residents residing in a formal housing unit with full flush toilets, access to electricity and piped water indoors. Responses received from the informal area were on the downside, leaning towards dissatisfaction. The data collected from observations and community stakeholder responses showed that residents in these informal areas had no proper access to water, ablution facilities or electricity, which results in these residents indulging in illegal electricity connections. Mutyambizi, Mokhele, Ndinda and Hongoro (2020) explain in their baseline assessment survey that access to basic services such as water, sanitation and electricity is both a local and a global concern that is articulated in the sustainable development goals.

Based on the results of this survey, residents of the Crossmoor informal settlement have a lack of piped water indoors with only communal taps and toilets. Residents are dissatisfied with sharing these communal facilities because there is no privacy, residents have to wait in line to fill water buckets and thereafter carry these buckets to their dwelling unit which is tedious. The same applies for ablution facilities where there are queues to use toilets which are not always maintained properly by the government, resulting in this being a health hazard in the area. UNICEF (2001) has stated that basic services are the building blocks for human development and that the lack of these basic services can have a detrimental effect of health, growth and development. The provision of basic services in informal areas has always been an ongoing discussion among the relevant service providers, however, there still remains a gap between the two types of households in terms of access to these services.

Public facilities

The data derived from the study area regarding public facilities shows no major red flags that indicate a large amount of dissatisfaction. This can be easily justified as the public facilities such as healthcare, educational facilities, social facilities, public open spaces and public transportation are easily available to the public without any restrictions. One of the minor issues that brought about dissatisfaction was the topic of affordability. Public healthcare facilities and public transportation is not costly and access to most social facilities and public open spaces is free; however, the cost of educational facilities may be a small issue to the poorer community.

The results are similar in relation to satisfaction with neighbourhood and social facilities, although the level of safety and tackling crime in the area has a high dissatisfaction rate. Based on the qualitative data collected from the area, crime surges have occurred based on the number of housebreakings, carjacking, theft and violent crimes. Chatsworth has a history of violence resulting from gang wars and territorial behaviour. With such activities in the area, most residents don't feel safe in their homes or on the streets. The majority of the population who felt unsafe were females.

5.12 Conclusion

This chapter has demonstrated the empirical application of examining households in order to understand the relationship between inhabitants and their dwelling units, the neighbourhood that surrounds them and the environmental facilities that are provided. This study was done using a sample from Chatsworth, one of Durban's formerly exclusively Indian townships. Chatsworth is a historic township that consists of various settlement typologies. These typologies include traditional rural areas, RDP housing, council rental stock, and two-storey and three-storey walk-ups. Alongside achieving the objective of the study, the hypothesis of housing deficits in formerly exclusively Indian

townships was tested. A range of data sets were composed using synthetic methodology including demographic and socio-demographic, household characteristics, public and neighbourhood facilities, access to services, social environment and behavioural characteristics.

6 Chapter 6: Synopsis and recommendations

6.1 Synopsis

The problem of a housing shortage and unsatisfactory living conditions has been a challenge faced by the developed and developing world for decades. Problems like appalling shelter deprivations and the critical concern for housing increases the amount of pressure on South African service delivery. Numerous legislative policies have been put in place to address the issues faced, however the apartheid challenges still exist, and South Africa continues to face deficiencies in service delivery with housing deficits that continue to grow. There is progress to be made in understanding the needs of the people in order to align these policies correctly to address the problem at hand. This research was based on a sample area of Chatsworth in South Africa which was initially an exclusively Indian township, but which has now become a mixed socio-economic area, still containing pockets of areas experiencing poverty and unsatisfactory living conditions. The overall objective of the study is to examine and understand the relationship between the inhabitants, their dwelling units, the neighbourhood that surrounds them and the environmental facilities that are provided. The study intended to identify the housing deficits that are existent in these areas and to propose feasible solutions to minimise these deficits.

In order to meet the overall objective of the study, the researcher broke it down into sub-objectives that would allow a swift accomplishment of the overall objective. These sub-objectives were: to establish factors that influence/determine the level of residential satisfaction in council rental stock, semi-detached, single detached and informal settlements in Chatsworth; to identify deficits and propose sound and feasible solutions to better housing; to determine the main and sub-factors that play a role in residential satisfaction; to evaluate factors that contribute to housing deficits; and lastly, to identify the needs of the public by using structured surveys and to propose a model that will most closely satisfy these needs.

To understand the concept of residential satisfaction, the terms housing and satisfaction should be defined separately. The idea of satisfaction is likely to occur when a service or product is better than expected or can also be defined as an individual feeling of approval or disapproval resulting from comparing a perceived outcome in relation to the expectation. As a rather many-faceted topic, the term housing can be conceptualised in various ways, namely as a social necessity, a place where people or groups of people take shelter and can live their life, or as an asset that can be either owned or rented. As a unit of the environment, housing can have a direct influence on human health, social behaviour and satisfaction which is profound and affects the overall general welfare.

The question of whether the state should be a facilitator, or a provider of housing is a central debate, mostly because most countries have moved away from being a provider due to their inability to sustain such provision. The role of housing policy in this is to encourage more control over the current housing situation through investment and development. However, regardless of the policies and investments, there still remains a continued dissatisfaction among the population regarding the quality of housing. South Africa opted for a shift from housing delivery to human settlements to establish ‘viable, socially and economically integrated communities’. However, despite the projects and policies implemented to address the housing situation, housing policies failed to take into account the cost of housing, the poor quality and location of housing, and the integration of housing with other socioeconomic facilities.

Major shifts in policy included a shift from houses to neighbourhoods and communities with an intention to integrate neighbourhoods, and from top structure to services with an intention to increase sustainability and assist in maintaining livelihoods. The shift also included a shift from shelter to asset to promote housing not only as a shelter but as a resource that would assist in livelihoods, and from quantity to quality because policy suggests that quality now plays a significant role in housing. However, based on the post-apartheid spatial challenges and the current development goals, transformation should focus on restructuring the built environment by producing higher density housing in well located areas that are effortlessly connected to major public transportation. In order to understand the reason for policy shifts, the researcher explored the term housing deficits, which is simply the shortage, deficiency or lack in the number of houses needed to accommodate the number of people in an area. Housing deficits comprise both qualitative and quantitative components, namely the qualitative focuses on quality and is less problematic because a normative decision is made on minimum housing quality, while the quantitative component is far more complicated because the normative decision is how many individuals should live in a household based on past and present household information.

In order for structural transformation to occur, the issue of housing deficits needs to be addressed and this issue poses a major challenge to development goals, not only locally but internationally as well. As a result of the rapid urbanisation currently occurring, certain countries may not have the financial outlays required to provide basic services such as housing and infrastructure. Future development and service provision need to be based on the population growth trends but governments do not have the capacity to satisfy the needs of all of their residents. Africa in particular has 17 countries that have housing deficits estimated at more than one million units and growing. This poses a major constraint on the structural transformation of the continent. It is important to note that there is not much difference between developed and developing countries in terms of low-income housing satisfaction levels.

Various housing theories were examined in order to comprehend housing deficits and the concept and determinants of household formation. The housing needs theory introduced by Rossi (1995) conceptualises residential satisfaction by positioning itself to argue that household growth follows a cycle and that as the household progresses, so do the needs and aspirations of the household. Morris and Winter's (1978) housing deficit theory theorise that households follow a certain type of norms, which include cultural and family norms, that are used to judge an individual's housing condition. Galster's (1985) psychological construct theory theorises that individuals create a reference condition for a specific housing condition and that households should be within close proximity or superior to the reference condition. If the current situation is deficient in regard to the reference situation, then dissatisfaction occurs, and individuals are most likely to do one of two things: either adapt to the change or migrate to another area. At the same time, critics believe that it is more essential to focus on real problems rather than satisfaction and that satisfaction levels may differ according to social group, social expectation and time.

Conceptual models based on housing satisfaction sought to understand residential satisfaction more deeply. Michelson's Integrated Model focused on the behaviour of individuals such as mobility, user needs, choices and environment. Similar to the psychological construct theory, which explains that responses by the residents due to dissatisfaction will lead to either adaptation, alteration or migration, this model asserts that changes in the primary needs of residents directly affect their overall

evaluation of the housing environment. The Onibokun Habitability Model sought to understand the subsystems of the housing unit, the structural quality, internal space, household services and the amenities of the quality of the internal environment that determine the level of residential satisfaction. The Housing Adjustment model, similar to the housing deficit theory, is practised using a set of norms that describes the efforts individuals put in to address discrepancies that occur in their housing when experiencing deficits. The Marans-Rogers Model focuses on external characteristics that influence residential satisfaction, such as the physical environment and the quality of the community. Similarly, the Path Analysis Model asserts that the neighbourhood characteristics, namely social class, local social attachments, residential experience, life cycle stages and housing type, all play a vital role in housing satisfaction. Lastly, Francescato's empirical model was created based on the residential environment, the social environment and the housing environment and emphasises that a functional relationship exists between each of these components.

Based on the empirical studies by local and international precedents, dissatisfaction occurs in public and high-density housing derived from the physical features, provision of services, public facilities and the social environment. Physical features of the housing unit that bring about dissatisfaction include: the washing and drying area, number of electrical sockets, number of toilets, cleaning services of the corridors, street lighting, garbage collection and security level within the housing unit. Space and living conditions also play a major role in the level of satisfaction. Neighbourhood characteristics that were examined in these studies included: location, design, neighbourhood noise and safety. The socio-demographic factors examined in these empirical studies included the tenure type, age of residents, level of education and the income levels, which all determined the level of satisfaction. Homeowners are more satisfied because they have a sense of financial security, and older residents are more satisfied than younger individuals because of the newer generations being aware of the expectations of society. The same concept applies to level of education and income levels. The behavioural characteristics that were examined sought to involve factors of location and social bonds with satisfaction.

The synthetic methodology of analysing the residential satisfaction levels developed in this research study has demonstrated that a holistic analysis of households is made up of several key factors, namely demographics of the residents, the physical features of the house, the housing support services and the public facilities. The demographic analysis included the analysis of the background, economic and social characteristics of the residents. The dwelling analysis contained details about the physical features of the house such as type of dwelling, number of rooms, satisfaction levels with the internal spaces, size, ventilation and durability of the dwelling. The analysis further went on to look at the housing support analysis which included access to and satisfaction levels with basic services as well as the public facilities which examined the healthcare, educational, social and transportation facilities.

On a pragmatic level, the case study of Chatsworth has attested to studies of local and international precedents in understanding the level of housing satisfaction in public housing. Overall, housing that does not meet the respected society norms are given mostly negative responses in terms of overall size, durability and poor design. Similarities were also found among renters, who were more dissatisfied due to a lack of financial security in terms of tenure. Based on the research and analysis of these historic settlements and public housing, the objectives of the study, which were to examine and understand the relationship between inhabitants and their dwelling units, the neighbourhood that surrounded them and the environmental facilities that were provided, were achieved, which validates the hypothesis of this research study.

6.2 Recommendations

One of the main recommendations of the study is to facilitate the active participation of government, relevant stakeholders and the community, to best understand the deficits and needs of the community that could actively influence that structure of development goals for the city. The main constraint is the implementation challenges of these sustainable development goals. However, there are various interventions that could assist both the community and the government in achieving these goals. Another major challenge that was identified is the quality-of-service provision in certain settlement typologies, mainly in the informal areas. These areas have a lack of services, or services that are currently available are not maintained in the manner that they should be, and as a result of this the community may engage in activities that may be hazardous to them. As a means to avoid this, strategies should be implemented that would align with the needs of the community to ensure long-term sustainability. For instance, services such as water and sanitation are communal in informal areas, mainly because the provision of individual services to each household is a challenge considering the rapid growth rate of the settlement causing infill in the area. Practical interventions should include increasing the number of taps and toilets in the area to avoid the clustering use of these facilities.

Based on data collected and the inferential analysis that was conducted, this research study recommends a practical indigenous model consisting of seven steps, which assesses and addresses problems relating to housing and service provision.

Figure 18: Model for assessing and increasing housing and environment satisfaction

1. **Identify a need**

Identifying a need is the first step to solving any problem. In the case of this study, the need for housing satisfaction was identified. There are other aspects that also factor into the need for housing, such as

a need for basic services and social facilities. The various factors that influence housing satisfaction are issues that need to be addressed in order to achieve satisfaction. Globalisation has led to rapid urbanisation in most cities, causing overpopulation in communities and settlement infills. This reduction in space normally causes dissatisfaction with the interior and exterior housing environment. Identifying and acknowledging the problem is always the first step in problem solving.

2. Assess the current situation

The second step would be to assess the current situation of the problem. There are various methods that can be used to assess these situations. Community engagements is the one of the ways to actively assess a community problem. By engaging with the community, the relevant stakeholders are able to speak directly with the community in order to understand their needs. Data on this can be collected by conducting research using surveys and audits. Co-design and visioning workshops can also be conducted to actively engage with the community in order to place and provide infrastructure and services strategically tailored to the needs of the community.

3. Policy alignment/initiatives/projects

By understanding the needs of the community, development goals can be aligned accordingly to best achieve the needs of the public. Policy makers play an important role in this step by developing short- and long-term goals that are realistic for the community. Meaningful community engagements are crucial in the planning and land use decisions.

4. Active involvement of NGOs/programmes

Collaboration with programmes and NGOs can play an important role in the community. Budget is always a constraint in third world countries, however, the collaboration with international parties can assist in the involvement of NGOs and the development of community programmes. Various projects can be implemented to assist, such as skills development programmes. By upskilling communities, their bargaining power increases, and such advantages assist in improving their livelihoods. Youth skills development programmes should also be implemented to foster youth and to empower them; this plays a vital role in personal development. In terms of dealing with crime, community programmes such as neighbourhood watches and community policing forums can be implemented to make the area safer, which can increase satisfaction with the safety of the area. Local businesses should also be involved in order to foster the growth of the local economy.

5. Facilitate housing projects

The number of housing projects should be increased to include all informal housing in less developed areas. Government and stakeholders should encourage sustainable housing that has an innovative design, higher desirability and better durability for the public. These housing typologies should be long term for the public and coherent with their needs.

6. Provide sustainable services

It is essential to provide services that can be easily sustained by the community. Self-sustainable services such as solar panels, JoJo tanks and Bokashi composting are just a few of the ways that the community can be actively engaged in their services. Recycling projects should be implemented to reduce the amount of waste in these areas, which can lead to a cleaner and safer community.

7. Maintenance and review

Government and stakeholders should ensure that communities are involved in maintaining the services provided, which will facilitate the active involvement of the community. A database should

be created where faulty or broken services can be logged seamlessly. KoBo Toolbox is an easy online data collecting app where faults can be uploaded and progress of repairs tracked. It is also important to review the success of these projects regularly in order to maintain the envisioned community.

Despite the municipality's various efforts at implementing housing projects, urbanisation and the rapid growth of settlements continue to increase the pressure on government service delivery. Nevertheless, an increased effort in regard to government housing projects is a recommendation proposed by this study. eThekwini has a large number of informal settlements and there are various such settlements within Chatsworth itself. By providing more formal housing, the overall satisfaction level is likely to increase.

6.3 Conclusion

The overall main objective of this research study was to examine and understand the relationship between inhabitants and their dwelling units, the neighbourhood that surrounds them and the environmental facilities that are provided in an historic Indian township known as Chatsworth in Durban, KawZulu Natal. In order to achieve the above objective, the study investigated three sample areas in Chatsworth, namely Bayview, Woodhurst and Crossmoor, where the researcher identified and analysed deficits in order to propose sound and feasible solutions to better housing. The study found that people inhabiting older housing typologies are far less satisfied with their housing situation due to the lack of space, lack of durability and inefficient designs.

A limitation of the study was that not all households in the sample typologies were surveyed. Although the study used inferential analysis to examine the level of residential satisfaction in the area, a larger sample size could have been more informative in terms of the housing deficits that are currently being experienced. Another factor that may have affected the results was the location of the study. Chatsworth currently contains various informal settlements and council housing in different locations and it is possible that households in other locations may experience different deficits compared to the ones surveyed. Location also plays a major role in challenges experienced by households, especially those living in informal housing.

Regardless of this, however, the study found that those living in informal housing have more concerns and are experiencing more housing deficits than those in council housing. The settlement initially began as RDP housing which started to infill over time, causing it to become an informal settlement. The materials that these houses are made of decreases the durability of the dwellings, causing the residents to become less satisfied. Responses received from community stakeholders confirmed that Chatsworth is experiencing a shortage of housing due to the many informal settlements that have arisen in the area. However, due to the amount of pressure that is currently being placed on government resources, providing incremental housing is definitely a challenge.

Over the years, government has put various policies in place to address these challenges faced in low-income areas. Regardless of these efforts and policies, the housing challenge still remains, for both the developing and the developed world. Based on the literature review and the local and international precedents, this issue of housing is far more challenging than we might assume it to be. Challenges of different natures are faced not only by the low-income informal housing typology but by a variety of typologies ranging from new design high density housing to student housing. South Africa's housing problem is one that has been lingering for decades and cannot be solved overnight or just by implementing policy. With extensive research on the needs of the public, policy alignment to

these needs and active implementation, there could be a starting point to reducing the housing problem. The indigenous model that the study proposes, focuses on acquiring the information on the needs of people rather than just assuming what they would want, and then focusing on implementation based on the needs. This can be regarded as a more practical solution to changing the housing development situation in South Africa.

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Appendices

Appendix 1: Residential Satisfaction survey (quantitative)

Housing deficits in formally segregated Indian townships in South Africa: A case study of Chatsworth, Durban.

Questionnaire number

_____

Interviewer name?

_____

Date

yyyy-mm-dd

_____

Dear volunteer, I am a Masters student in The Built Environment at Durban University of Technology and this questionnaire is part of my research. The Department of Town and Regional Planning at the Durban University of Technology is currently conducting research around the issues of housing deficits and residential satisfaction in the eThekwini Municipality. As part of the research, I am collecting information to understand the housing deficits experienced and the overall residential satisfaction in Chatsworth – a formally segregated Indian township. This questionnaire should take approximately 15 minutes of your time and participation is strictly voluntary and you may withdraw from the study at any time. The responses of the questionnaire are completely anonymous and any information provided will be kept confidential. Should you choose to participate in this survey, please answer the questions as honestly as possible. Completion and return of the questionnaire will indicate your willingness to participate in this research. To preserve anonymity, do not write your name on the questionnaire. Your participation is highly appreciated.

_____

Section A: Respondent Background

_____

A1. Name of Suburb

- ◯ Bayview
- ◯ Crossmoor
- ◯ Woodhurst
- ◯ Other (Specify)

A2. Respondent Age

- ◯ < 18 Years
- ◯ 18 – 25 Years
- ◯ 26 -30 Years
- ◯ 31 – 35 Years
- ◯ 36 – 40 Years
- ◯ 41 – 45 Years
- ◯ 46 – 50 Years
- ◯ 51– 55 Years
- ◯ 56 – 60 Years
- ◯ > 60 Years

A3. Respondent Gender

- ◯ Female
- ◯ Male

A4. Respondent Home Language

- English
- IsiZulu
- Xhosa
- Afrikaans

A5. Respondent Ethnic Group

- ◯ African/ Black
- ◯ Coloured
- ◯ White
- ◯ Indian
- ◯ Other

Section B: Socio-Demographic Characteristics

B1. What is the gender of the head of the household?

- ◯ Female
- ◯ Male

B2. What is the age of the head of the household?

- ◯ Younger than 18 years
- ◯ 18 – 25 years
- ◯ 26 – 30 years
- ◯ 31 – 35 years
- ◯ 36 – 40 years
- ◯ 41 – 45 years
- ◯ 45 – 50 years
- ◯ 51 – 55 years
- ◯ 56 – 60 years
- ◯ Older than 60 years

B3. What is the monthly income of the household head?

- ◯ R1 – R4500
- ◯ R4501 - R9500
- ◯ R9501 – R20 000
- ◯ R20 001 – R55 000
- ◯ R55 001 – R120 000
- ◯ R120 001 – R250 000
- ◯ R250 001 – R500 000
- ◯ R500 001 or more

B4. What type of household do you currently live in?

Nuclear household: Married-couple family (with children/without children), Father with children or Mother with children. Extended household: is one where two households have joined together to form a single household. Composite household: is a household consisting of any of the following: - a single family nucleus plus other persons.

- ◯ One-person household
- ◯ Nuclear household
- ◯ Extended household
- ◯ Composite household
- ◯ Other/Unknown

B5. How long have you been staying at your dwelling unit/house?

- ◯ Less than 2 years
- ◯ 2 – 5 years
- ◯ 5 – 10 years
- ◯ More than 10 years

B6. How many persons are currently living in the dwelling unit/house?

- ◯ 1 – 2 persons
- ◯ 3 – 4 persons
- ◯ 5 – 6 persons
- ◯ 7 or more persons

B7. How many sources of incomes are there within the household?

- ◯ One – two incomes
- ◯ Three – four incomes
- ◯ Five – six incomes
- ◯ More than six incomes

B8. What are the sources of the incomes?

(You may select one or more answers)

- ☐ Formal employment
- ☐ Informal employment
- ☐ Informal business
- ☐ Government grants
- ☐ Subsidies
- ☐ Other

B9. Are the monthly household costs considered a burden?

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neither disagree nor agree
- ◯ Agree
- ◯ Strongly Agree

B10. How many members of the household are currently in school/university or training?

- ◯ None
- ◯ 1 – 2 people
- ◯ 3 – 5 people
- ◯ More than 5 people

B11. How many members of the household are currently employed?

- ◯ None
- ◯ 1 – 2 people
- ◯ 3 – 5 people
- ◯ More than 5 people

Section C: Physical features of the house

C1. What type of dwelling unit/house do you currently reside in?

- ◯ Single-storey free standing
- ◯ Two-storey council rental stock
- ◯ Three-storey social housing
- ◯ Informal Housing

C2. How many rooms does your dwelling unit have?

- ◯ Less than 2 rooms
- ◯ 2 – 5 rooms
- ◯ 6 – 10 rooms
- ◯ More than 10 rooms

C3. What is the person-room ratio in your household?

- ◯ One person per room
- ◯ Two persons per room
- ◯ Three persons per room
- ◯ Four persons per room
- ◯ Five persons per room
- ◯ More than five persons per room

C4. What is your level of satisfaction with your current bedroom spaces?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C5. What is your level of satisfaction with your current kitchen space?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C6. What is your level of satisfaction with your current bathroom space?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C7. What is your level of satisfaction with your current dining space?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C8. What is your level of satisfaction with your current living space?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C9. What is your level of satisfaction with the plumbing in your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C10. What is your level of satisfaction with the electrical sockets in your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C11. What is your level of satisfaction with the lighting in your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C12. What is your level of satisfaction with the overall size of your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C13. What is your level of satisfaction with the ventilation in your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

C14. Is your dwelling unit able to withstand severe weather conditions?

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neither disagree nor agree
- ◯ Agree
- ◯ Strongly Agree

Section D: Housing Support Service

D1. How does your dwelling unit get access to water?

- ◯ Basic access: Communal tap
- ◯ Intermediate access: Piped water on site
- ◯ Full access: Piped water inside the dwelling unit
- ◯ Other

D2. What is your level of satisfaction with the level of access to water in your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

D3. What level of sanitation does your dwelling unit/house currently have?

- ◯ Basic access: Pit latrine
- ◯ Intermediate access: Communal flush toilet
- ◯ Full access: Flush toilet inside the dwelling unit

D4. What is your level of satisfaction with the level of access to sanitation in your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

D5. How does your dwelling unit get access to electricity?

- ◯ Candles, Gas, Paraffin, Petroleum etc.
- ◯ Electricity from other sources (Unauthorized)
- ◯ Authorized electricity supplied to dwelling unit

D6. What is your level of satisfaction with the level of access of electricity in your dwelling unit/house?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

D7. What is your level of satisfaction with your current private yard space?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

D8. Would you say your dwelling unit/house is sufficient size for the number of people in your family?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

D9. What type of ownership do you currently have for your dwelling unit/house?

- ◯ Renting
- ◯ Long term lease
- ◯ Title Deed

Section E: Public Facilities

E1. What is your level of satisfaction with the healthcare facilities in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

E2. What is your level of satisfaction with the educational facilities in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

E3. What is your level of satisfaction with the social facilities in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

E4. What is your level of satisfaction with the public open space(s) in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

E5. What is your level of satisfaction with the public transportation in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

Section F: Neighbourhood Facilities

F1. What is your level of satisfaction with the sports and recreational facilities in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

F2. What is your level of satisfaction with the infrastructure services provided?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

F3. What is your level of satisfaction with the level of safety in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

F4. What is your level of satisfaction with tackling crime in the surrounding area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

F5. What is your level of satisfaction with the pollution levels in the surrounding area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

Section G: Social Environment

G1. What is your level of satisfaction with the early childhood development facilities in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

G2. What is your level of satisfaction with the youth facilities in the area?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

G3. What is your level of satisfaction with the community facilities in the area (community halls and centres)?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

G4. What is your level of satisfaction with the social facilities in the area (restaurants, bars or cafes)?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

G5. What is your level of satisfaction with the retail facilities in the area (shopping malls or shops)?

- ◯ Strongly dissatisfied
- ◯ Dissatisfied
- ◯ Neutral
- ◯ Satisfied
- ◯ Strongly satisfied

Section H: Behavioral Characteristics

H1. Have any young adults moved out of the household?

- ◯ Yes
- ◯ No

H2. If Yes, in your opinion, what do you think caused them to move?

_____

H3. Have you made any adjustments to your household (extended the household/ replaced any broken external structures or changed the physical feature)?

- ◯ Yes
- ◯ No

H4. If Yes, please specify what adjustment were made.

_____

H5. Please specify why you made these adjustments.

_____

H6. Did these adjustments increase your level of satisfaction?

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neither disagree nor agree
- ◯ Agree
- ◯ Strongly Agree

Section I: COVID – 19 Change in lifestyle

I1. Do you wash your hands regularly?

- ◯ Yes
- ◯ No

I2. Do you sanitize regularly?

- ◯ Yes
- ◯ No

I3. Do you maintain a safe social distance in public areas?

- ◯ Yes
- ◯ No

I4. Are you avoiding crowded places?

- ◯ Yes
- ◯ No

I5. Has the nationwide lockdown affected your household?

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neither disagree nor agree
- ◯ Agree
- ◯ Strongly Agree

Section I: COVID – 19 and the household

J1. Has a member of your household been (suspected of being infected by Covid 19/ quarantined/laboratory confirmed Covid 19 infected/ deceased)?

- ◯ Yes
- ◯ No

J2. Are you worried about COVID-19?

- ◯ Yes
- ◯ No

J3. Do you trust the public health instructions of the DOH during the COVID-19 outbreak?

- ◯ Yes
- ◯ No

Appendix 2: Residential Satisfaction interviews with stakeholders

Residential Satisfaction Interview Researcher:
Shivasthi Matthew

Date: 30 October 2020

No: *1*

Time: *15 min*

Topic: Housing Deficits in formerly exclusively Indian townships in South Africa: A case study of Chatsworth, eThekwini Municipality, KwaZulu Natal.

Interviewer:	*XXXXXXXXXX*
Interviewee:	*XXXXXXXXXX*
Designation:	Ward Councillor
Venue:	Chatsworth
Start Time:	11:30

1. **Are you a resident of Chatsworth?**

   No

2. **What is your relationship to the community?**

   Ward Councillor

3. **How long have you been in this designation?**

   Few months

4. **Which area/typology are you responsible for?**

   Ward 71

5. **What are the main concerns raised by the community?**

   The shortage of housing, the lack of services provided, refuse removal and unemployment

6. **What measures have you taken to ensure that these concerns are attended to?**

   The concerns of the residents have been taken into account - people are urged to stop dumping

7. **How long is the response rate to housing problems of residents?**

   Concerns are brought to the attention of the authorities, awaiting responses

8. **How often do residents complain about their dwelling units?**

   Almost every second week

9. **In your opinion, the area you represent, is it in good condition?**

   Not quite, improvement is needed

10. **Is the area well maintained?**

    We are trying our best to maintain it.

11. **Do you think residents in your area are satisfied with their current housing situation?**

    No

12. **As a representative, what have you been doing or what can you do to increase this satisfaction?**

Create better housing

More access to services and employment

Residential Satisfaction Interview Researcher: Shivasthi Matthew

Date: 30 October 2020

No: 2

Time: 15 min

Topic: Housing Deficits in formerly exclusively Indian townships in South Africa: A case study of Chatsworth, eThekwini Municipality, KwaZulu Natal.

Interviewer:	*XXXXXXXXXX*
Interviewee:	*XXXXXXXXXX*
Designation:	Bayview representitive
Venue:	Chatsworth
Start Time:	13:30:00 AM

1. **Are you a resident of Chatsworth?**

   Yes

2. **What is your relationship to the community?**

   Representative of the community

3. **How long have you been in this designation?**

   2 years

4. **Which area/typology are you responsible for?**

   Bayview housing

5. **What are the main concerns raised by the community?**

   Lack of housing and underserviced areas

6. **What measures have you taken to ensure that these concerns are attended to?**

   Brought concerns to councillor

7. **How long is the response rate to housing problems of residents?**

   Very long

8. **How often do residents complain about their dwelling units?**

   Very often

9. **In your opinion, the area you represent, is it in good condition?**

   No

10. **Is the area well maintained?**

    No

11. **Do you think residents in your area are satisfied with their current housing situation?**

    No

12. **As a representative, what have you been doing or what can you do to increase this satisfaction?**

Government should provide better housing conditions

Time: *15 min*

Topic: Housing Deficits in formerly exclusively Indian townships in South Africa: A case study of Chatsworth, eThekwini Municipality, KwaZulu Natal.

Interviewer:	*XXXXXXXXXX*
Interviewee:	*XXXXXXXXXX*
Designation:	Crossmoor representitive
Venue:	Chatsworth
Start Time:	9:00

1. **Are you a resident of Chatsworth?**

   Yes

2. **What is your relationship to the community?**

   Representative

3. **How long have you been in this designation?**

   4 years

4. **Which area/typology are you responsible for?**

   Crossmoor

5. **What are the main concerns raised by the community?**

   No housing

6. **What measures have you taken to ensure that these concerns are attended to?**

   Complained to housing and councillor

7. **How long is the response rate to housing problems of residents?**

   No response received

8. **How often do residents complain about their dwelling units?**

   All the time

9. **In your opinion, the area you represent, is it in good condition?**

   No, poor housing and services

10. **Is the area well maintained?**

    No

11. **Do you think residents in your area are satisfied with their current housing situation?**

    No

12. **As a representative, what have you been doing or what can you do to increase this satisfaction?**

    Need housing, water and electricity

Residential Satisfaction Interview Researcher: Shivasthi Matthew

Date: 30 October 2020

No: 4

Time: 15 min

Topic: Housing Deficits in formerly exclusively Indian townships in South Africa: A case study of Chatsworth, eThekwini Municipality, KwaZulu Natal.

Interviewer:	*XXXXXXXXXX*
Interviewee:	*XXXXXXXXXX*
Designation:	Woodhurst representative
Venue:	Chatsworth
Start Time:	10:45

1. **Are you a resident of Chatsworth?**

   Yes

2. **What is your relationship to the community?**

   Peoples representative

3. **How long have you been in this designation?**

   3 years

4. **Which area/typology are you responsible for?**

   Woodhurst council housing

5. **What are the main concerns raised by the community?**

   Refuse removal, leaking facilities and poor housing

6. **What measures have you taken to ensure that these concerns are attended to?**

   Complaints have been sent to councillor Vedan

7. **How long is the response rate to housing problems of residents?**

   People are still awaiting results

8. **How often do residents complain about their dwelling units?**

   Vey often

9. **In your opinion, the area you represent, is it in good condition?**

   Not very, there is litter around

10. **Is the area well maintained?**

    No

11. **Do you think residents in your area are satisfied with their current housing situation?**

    Not very

12. **As a representative, what have you been doing or what can you do to increase this satisfaction?**

    Listen to the concerns, report to councillor