DURBAN UNIVERSITY OF TECHNOLOGY
INYUVESI YASETHEKWINI YEZOBUCHWEPHESHE

Residential Satisfaction of Informal Settlement Dwellers Relocated to Integrated Human Settlements: The case of Cornubia

Submitted in fulfilment of the requirements for the degree of Master of the Built Environment in the Faculty of Engineering and the Built Environment at the Durban University of Technology

by

Sandhya Gangapersad

2022

Supervisor: Dr Godfrey G Musvoto

Date: 2022

ABSTRACT

The purpose of this study was to establish the impact on the residential satisfaction of relocating informal settlement dwellers to greenfield housing projects. The study was conducted in the community of Cornubia within the eThekwini Municipality. The Cornubia Integrated Human Settlement Project is one of the initiatives taken to assist with the current challenge of informal settlements. Unlike other greenfield projects, the Cornubia development looks at creating a "*city within a city"* by providing various mixed-use activities to service the beneficiaries and create economic opportunities, thus eliminating common complications associated with informal settlement relocation projects. A case study methodology was used to evaluate the level of residential satisfaction achieved by beneficiaries of the project – which included dwellers from transit camps and informal settlements, such as Blackburn, Stonebridge, and Ridgeview. The allocation of subsidised units began in late November 2013. A structured questionnaire was conducted with the identified sample of the study, of which there were 127 respondents. Each component was measured against the level of residential satisfaction achieved in order to obtain a conclusion. Semi-structured interviews were conducted with municipal officials who were involved in the project. The conclusions and recommendations drawn from the findings are that a more holistic and integrated approach needs to be enforced – especially with regard to service delivery and development timeframes. The quality of houses still needs to be improved considerably. Public awareness needs to be given more attention as not many residents were aware of their surroundings. Overall, residents were merely satisfied and grateful to have a roof above their heads.

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

- United Nations Sustainable Development Goal 11

DECLARATION OF ORIGINALITY BY STUDENT

I declare that unless otherwise acknowledged in the text, this thesis is my own original unaided work, and has not been submitted in whole or part, to any other university.

_____

Sandhya Gangapersad

2022

ACKNOWLEDGEMENT

I wish to acknowledge with gratitude, the timely support and encouragement of my family, colleagues, and friends who have so generously made this dissertation a successful endeavour.

I am extremely grateful for the support of my parents and family through these long years of research and writing. I would also like to extend my greatest appreciation to all the residents of Cornubia who participated by allowing me into their homes and lives. This research would not have been completed without their willing participation.

I would like to thank my supervisor, Dr Godfrey G Musvoto, for allowing me the opportunity to carry out this research study and ultimately to make my contribution towards the study of the Built Environment.

I also extend my gratitude and appreciation for the help and support I received from my colleagues of the eThekwini Municipality (Public Sector Housing). Ms Nompumelelo Myeni, Mr Sibonelo Ngcobo, and Ms Nomfundo Mkhize – thank you for your willingness to assistance me with this study; the input received has enhanced this researcher's study immensely.

A special thank you to Mr McAllister Lee Kannigan and Miss Shivasthi Matthew for constantly pushing me towards the completion of this dissertation, for continuously telling me "Go and do your work now", for the endless video calls at the most random times, and for ensuring that I did not give up.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS

BNG	-	Breaking New Ground
BRTS	-	Bus Rapid Transit System
CBD	-	Central Business District
CBP	-	Community-based Planning
CEPT	-	Centre for Environmental Planning and Technology
CSIR	-	Council for Scientific and Industrial Research
DMOSS	-	Durban Metropolitan Open Space System
EIUS	-	Environmental Improvement of Urban Slums
FLIPS	-	Financial Linked Individual Subsidy Programme
GDP	-	Gross Domestic Product
GEAR	-	Growth, Employment, and Redistribution
GSCB	-	Gujarat Slum Clearance Board
IDP	-	Integrated Development Plan
IPT	-	Intermediary Public Transport
IRDP	-	The Integrated Residential Development Programme
IRPTN	-	Integrated Rapid Public Transport Network
JNNURM	-	Central Government's Jawaharlal Nehru National
KSIA	-	King Shaka International Airport Programme
LEFTEA	-	Less Formal Township Establishment Act 113 of 1991

RDP	-	Reconstruction and Development Programme
SANRAL	-	South African National Roads Agency
SASA	-	South African Sugar Association
SDF	-	Spatial Development Framework
SDGs	-	Sustainable Development Goals
SPLUMA	-	Spatial Planning and Land Use Management Act
SPSS	-	Statistical Package for the Social Sciences
TFR	-	Total Fertility Rate
UBSP	-	Urban Basic Services for the Poor Programme
UCD	-	Urban Community Development Programme
		Urban Renewal Mission

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 Background

Residential satisfaction, or housing satisfaction, is a rather complex concept and can be interpreted from various points of view, depending on the situation and context. The concept looks at the gap between residents' needs and the reality of the current residential context. It has also been used as a predictor of an individual's perceptions of the general quality of life (Aigbavboa 2014). Previous studies have shown that the location of low-income or subsidised housing plays a vital role in the level of residential satisfaction achieved. In this study we will be looking at residential satisfaction from a location context, with the main focus on residents who have been relocated from various informal settlements to a newly developed greenfield housing project.

Over the years, informal settlements or slums have been regarded as global eye-sores and considered to be unstable and disaster risks, chaotic and dirty, and sources of crime and drugs. Since the establishment of such settlements there has been constant change, in terms of population, location, and mobility. This is explained in further detail by the Central Place Theory, by theorist Walter Christaller, as he outlines the importance that location plays with regard to measuring the level of satisfaction attained by residents (King 1985).

Recent informal settlement strategies have focused on in situ upgrading of informal settlements, and forceful eradication resulting in relocation. These methods have been reinforced and further studied by authors such as Cirolia, Görgens, Van Donk, Smit and Drimie (2017), Ntema, Massey, Marais, Cloete and Lenka (2018), and Huchzermeyer (2011). Eradication and relocation programmes were a global strategy adopted to safely relocate residents of informal settlements to subsidized formal housing, located on greenfield land which was mainly found on the periphery of major cities. The biggest criticism identified with this approach was that the majority of the projects have focused on quantity rather than quality, which has left residents dissatisfied. This was identified in various relocation programmes globally, nationally, and locally.

Looking at the trends in the developed world, the majority of the relocation projects involve moving residents from social housing a higher level of housing in terms of quality – this is due to the poor quality of existing informal settlements, whereas the developing world has shown a relatively low number of relocation projects involving informal dwellers.

In the case of South Africa, housing strategies such as the Reconstruction and Development Programme (RDP) made various promises to individuals. The RDP programme made provision for housing for South Africans with a combined income of R3500 or less. The programme promised the provision of land, which would consist of legal tenure, infrastructure, and basic services. However, the intended vision was not achieved, as government was faced with issues of limited resources, the challenge of the current housing backlog against the rate of urbanisation, corruption, and the reinforcement of urban sprawl through greenfield projects (Greyling 2010; Manomano 2013; Nokulunga, Didi and Clinton 2018)

At a local level, the eThekwini Municipality has been exploring and implementing various housing methods with the aim of fast-tracking the delivery of housing. The municipality has looked at the refurbishment of existing units and the in-situ upgrading of existing informal settlements. These approaches have looked at improving residents' satisfaction in regard to already occupied land, also referred to as brownfield land/development; an example of such a development is the Cato Crest in-situ upgrade. Alternatively, the concept of development on suitable and vacant land has also been approached by the municipality, also referred to as greenfield land/development; an example of such a development is the Cornubia integrated human settlement project.

1.2 Research statement

The Cornubia Integrated Human Settlement Project incorporates social housing and a variety of essential mixed uses on the northern corridor of Durban's commercial hub. Housing projects often focus on quantity at the expense of quality as an attempt to address the current housing backlog, which compromises the sustainability of the developments and directly impacts upon the satisfaction levels of residents. Adhering to the principles of the United Nations' sustainable development goals (SDGs) (UN 2015) is necessary in ensuring that residential satisfaction levels are met, thus prompting the development of sustainable cities and communities (United Nations' 11th Sustainable Development Goal). The Cornubia development has strategically combined several concepts and strategies – these include greenfield projects, new towns, and informal settlement eradication – to create a "city within a city", thus eliminating the issue of commuting costs and creating opportunities within

the development. The development was officially launched in 2011/2012, with five significate phases. The first phase, the pilot phase (Phase 1A), began shortly after the launch and reached completion by 2013/2014. This phase introduced 482 dwelling units which were allocated to beneficiaries of various transit camps and informal settlements, which included Blackburn, Stonebridge, and Ridgeview (Ndlovu 2013; Msibi 2014). Despite this strategic approach, several adverts have been found on various forms of social media, showing attempts to sell subsidised houses from the Cornubia development (Magubane 2020). It is questionable whether this illegal activity is due to lack of residential satisfaction or simply a money-making scheme. The recent protest actions from the community has shown signs of dissatisfaction, as residents demand the installation of a bridge across the R102, after several pedestrians were knocked over while trying to cross the busy highway (Majola 2020; Ngema and Dawood 2020). Very few residential satisfaction studies have been conducted to date, especially on the Cornubia development. There is great need for this study in order to pave the way for the remaining phases and future development.

1.2.1 Aim

The aim of this investigation is:

- to establish the impact of relocation on the residential satisfaction levels of informal dwellers who were relocated to the Cornubia (greenfield) Integrated Human Settlements Project.

1.2.2. Objectives

The objectives of this investigation are as follows:

- to prepare a detailed research conceptual and theoretical framework focusing on residential satisfaction, informal settlements, relocation projects, and greenfield projects in order to obtain a complete understanding of the phenomenon;
- to identify and correlate international precedents on residential satisfaction and informal settlements in the developed and developing world;

- to formulate a suitable methodology to investigate the level of residential satisfaction achieved by residents of the Cornubia Integrated Human Settlements Project;
- to empirically investigate the level of residential satisfaction achieved by residents of the Cornubia Integrated Human Settlements Project by collecting data from Phase 1A, by using structured questionnaires as a quantitative component; and
- to evaluate the data collected and draw up conclusions regarding the level of residential satisfaction achieved by Phase 1A of the Cornubia Integrated Human Settlements Project.

1.3 Key concepts and definitions

1.3.1 Urbanisation, urban growth and spatial distribution

The high rate of technological advancements and rapid globalisation has led to an increase in the number of people moving into cities. This phenomenon is referred to as urbanisation. Urbanisation has been formally defined as the increase of the urban population within a city as a result of population growth (Kok and Collinson 2006). Kasarda and Crenshaw (1991) add that urban growth occurs in three significant ways: natural growth, urban growth boundary redefinition, and migration. These phenomena feed into the concepts of population or spatial distribution, which denote the spatial pattern formed as a result of dispersal of population, formation of agglomeration, linear spread, and so forth. Population density, on the other hand, refers to the ratio of people to physical space.

1.3.2 The vertical city and the horizontal city

The vertical city and the horizontal city are creative and descriptive terms used to describe city formation. As the words suggest, a vertical city refers to development which occurs upwards, i.e., the development of high-rise buildings and skyscrapers, whereas a horizontal city refers to development which occurs outward, i.e., lower buildings over a larger stretch of land (Makkar 2017).

1.3.3 Informal settlements

Slums, informal settlements and squatter camps are a few of the many names used to describe the state in which the urban poor reside; however, each one has distinct features which separate it from the others. The term “slum” is most commonly used to describe the poorest and most unsanitary forms of housing (Cirolia *et al.* 2017).

An informal settlement is a form of slum which refers to land that has been illegally occupied and used for residential purposes (Hofmann, Strobl, Blaschke and Kux 2008). Lastly, a squatter camp is identified as a type of informal settlement where people have illegally occupied a piece of land (Cirolia *et al.* 2017). This study refers occupants of these settlements as informal dwellers.

1.3.4 Housing projects

Provision of housing is the key to eradicating informal settlements. With that said, several strategies and initiatives have been formulated and implemented to assist with the current housing provision backlog. Within the context of KwaZulu-Natal, relocation and in-situ upgrading of informal settlement projects are the two dominant approaches used in the provision process of social housing (Ziblim, Sumeghy and Cartwright 2013; Magubane 2016). In this context, relocation projects involve total redevelopment, with the evacuation and relocation of informal dwellers to a suitable greenfield development elsewhere.

A greenfield development, or greenfield housing project, refers to those developments constructed on virgin sites, which is land that is unused, vacant and free of man-made obstacles (Koll-Schretzenmayr 1999). In-situ upgrading projects, on the other hand, entail developing the existing informal settlement, without any evacuation or relocation, by gradually making provision of land tenure, infrastructure, and social/basic services to informal dwellers. Such development is also known as a brownfield development (Del Mistro and Hensher 2009; Franklin 2011; Ziblim, Sumeghy and Cartwright 2013).

Greenfield housing projects accommodate a greater number of people; however, this type of development promotes urban sprawl, and the time frame is greater than that for upgrading programmes. Despite providing services to settlements at a faster rate, in-situ upgrading programmes are not the most favourable option as not every settlement is suitable for upgrading, mainly due

to its location. This predicament has led the eThekwini Municipality to formulate the Cornubia Integrated Human Settlement Project. Unlike other greenfield projects, the Cornubia development looks at creating a “city within a city”. The project is a mass development on previously vacant land, consisting of mixed-income housing typologies – therefore, the project can be regarded as both a greenfield housing project and an integrated residential development plan.

1.3.5 Residential satisfaction

Residential satisfaction, or housing satisfaction, has been explained by Abidin, Abdullah, Basrah and Alias (2019) as the level of contentment an individual may achieve from one’s need and desire in relation to a house. Tan (2016) refers to residential satisfaction as an indicator of residents’ views on their general quality of life, while, Amérigo and Aragones (1997) inform us that it is a global attitude representing the level of fulfilment of residents needs and expectations. They add that it describes the quality of life of the residents of a specific residential environment and may be seen as trigger factor impacting residential mobility.

1.3.6 Beneficiaries/Residents

In the context of this study, residents or beneficiaries refer to those individuals who have been relocated to the Cornubia Housing Development.

1.3.7 Cornubia Integrated Human Settlement Project

In the context of this study, the Cornubia Integrated Human Settlement Project may be referred to as, the *Cornubia Integrated Human Settlement Project*, the *Cornubia Housing Project*, the *Cornubia Housing Development,* or the *Cornubia Settlement.*

1.4 Outline of chapters

This dissertation has been arranged strategically to meet all the objectives set out the study. This research study has been divided into six chapters which have been carefully and strategically structured.

Chapter 1: Introduction to the study – examines the research problem or problem statement. The aim and objectives, which the dissertation sets out to analyse, are outlined in detail. The key concepts and definitions are outlined.

Chapter 2: Conceptual and theoretical framework – provides a detailed literature review for the study. It begins with a discussion of the conceptual and theoretical framework, by exploring and examining key structuring concepts and their underlying theories.

Chapter 3: International precedents and case study – explores international literature which focuses on informal dwellers, relocation projects, greenfield housing projects, and residential satisfaction. This chapter also introduces the case study of the Cornubia Integrated Human Settlement Project, in detail.

Chapter 4: Research methodology – outlines the research methodology used for this study. Research methodology is a set of guidelines and techniques to be followed for the collection and analysis of data. Highlighting the research methodology assists in validating the findings and recommendations of the study. The chapter goes further to break down the research approach/design, data collection process, data analysis process, validity and reliability, and ethical considerations of the study.

Chapter 5: Analysis of findings – looks at analysing the primary data collected during this investigation, in the form of quantitative and qualitative data. The results obtained from the questionnaires, interviews, and the field observations have been recorded as the primary data for this study. The relevant data obtained from the secondary sources have also been utilised to come to a conclusion on the level of residential satisfaction in regard to relocating residents of informal settlements to the Cornubia Integrated Human Settlements Project. The chapter will examine the overall results in order to determine the impact that relocation has had on residents, while highlighting the key findings of the study.

Chapter 6: Conclusion and recommendation – the final chapter provides a summary of the whole study and arrives at a conclusion based on the findings. Final recommendations are made with regard to the results obtained from the study.

1.5 Conclusion

Chapter one has provided an overview of the research study, along with the aim and objectives in the investigation of the level of residential satisfaction achieved by relocated informal dwellers to greenfield housing projects. The key concepts and key definitions in relation to the study has been introduced. The chapter has unpacked the motive behind this research topic, along with a strategic layout and breakdown of each chapter of this dissertation. The next chapter introduces the conceptual and theoretical framework of the study.

CHAPTER 2: CONCEPTUAL AND THEORETICAL FRAMEWORK

This chapter provides a detailed literature review for the study. It begins with a discussion of the conceptual and theoretical framework, by examining key structuring concepts and their underlying theories.

2.1. Urbanisation and spatial distribution

Examining spatial patterns of urban expansion and urbanisation creates a foundation for this study by providing an understanding of the planning and sustainability of cities worldwide.

2.1.1. Urbanisation and urban growth

The rapid rate at which technology has advanced, and the increase in globalisation has led to an increase in the number of people moving into cities. This phenomenon is referred to as urbanisation. During the 1800s, only 3% of the world's population lived in cities. By the year 2008, a tipping point was reached and there were officially more people residing in cities than in rural areas. The global urban population is predicted to reach approximately 6.3 billion by 2050, while the South African urban population is predicted to increase by approximately 50% by 2035 (Cirolia *et al*. 2017). In the context of South Africa, the urban population has been predicted to increase by approximately 50% by the year 2035, as rural areas reach full capacity and the birth rate within urban area increases uncontrollably (Cirolia *et al.* 2017). As of 2020, the UN has recorded that approximately 56.2% of the global population now reside in cities. Buchholz (2020) highlights that Latin America and the Caribbean have shown the most drastic change in figures, with 81.2% of the population now residing in urban areas, compared to the 41.3% recorded in 1950. Africa and Asia have been labelled as the fastest growing continents, with Buchholz (2020) adding that while less than 20% of Africans and Asians lived in urban areas in 1950, these figures have now increased to 43% and 51% respectively.

Urban growth occurs in three significant ways: natural growth, urban growth boundary redefinition, and migration (Kasarda and Crenshaw 1991). The natural population growth of a city is identified by observing the birth rate, death rate, and life expectancy of the residents in the city in question. The urban growth boundary attempts to control urban sprawl by limiting urban

development within a specific boundary, thus promoting densification (vertical development). This concept aims to preserve agricultural land and prevent urban encroachment. Looking closer at the concept of migration, Marshall, Waldman, MacGregor, Mehta and Randhawa (2009) refer to the concept as movement or relocation which is influenced by a city's economic development and growth, and by technological change. However, Thet (2012) reminds us that there are various types of migration. International migration involves the movement of individuals between countries (Klug, Rubin and Todes 2013). While intra-national migration looks at the movement of people within a specific country. The most common type of migration experienced is rural-urban migration, which involves the movement of individuals from rural areas to urban areas – this type of movement is often considered one of the most important factors related to population growth (Klug et al. 2013). This movement is driven by pull factors which attract people towards urban areas and push factors which drive people away from rural areas (Thet 2012).

The drastic increase in urban population has led to extreme densification within original cities' boundaries, significant spatial expansion of existing cities, and an increase in the number of overall cities (OECD/European Commission, 2020). Due to cities' inability to expand at a comparable rate to population growth, density levels of certain cities skyrocketed, whereas smaller cities were the exception as density levels decreased over time (OECD/European Commission, 2020). The changing patterns of cities has introduced challenges for sustainable development in terms of infrastructure, exposure to climate risk, and service provision. Understanding, categorising, and measuring how the world is populated provides a new tool for policymakers in creating sustainable cities.

2.1.2. Spatial distribution

The concept of spatial distribution in relation to cities and regions looks at the aspects of location, size, and patterns formed within these cities and regions which are a result of a complex interplay of forces. Spatial distribution trends suggest that people tend to locate within close proximity to one another for a variety of reasons such as mutual protection, access to essential materials, goods and services, and to obtain a sense of belonging within a community (Williams 2012). Ultimately, where people choose to reside depends on the

level of overall satisfaction achieved. The phenomenon of urbanisation constantly develops and changes over time, resulting in the continuous change in spatial patterns and models. To fully understand the spatial distribution patterns in relation to urbanisation, especially regarding housing and settlement projects, several factors need to be considered. Research conducted by Henderson, Squires, Storeygard and Weil (2017) and Morrill (1963) has highlighted the following:

a. Economic and social conditions

Morrill (1963) suggests examining the economic aspects of urbanisation to obtain a clearer understanding of economic expansion, the threshold conditions for successful entry of activities, economies of agglomeration, and the importance that technological change has on the utilisation of natural and human resources (Morrill 1963). By obtaining this information, researchers can further explore the influence that spatial extent, scaling, and grouping of activities have on the location and size of cities/towns (Morrill 1963). Henderson *et al.* (2017) elaborate on the economic aspect by bringing forward the concept of agglomeration. People tend to locate within close proximity to each other in small areas in order to enjoy mutual benefits. However, the issues of overpopulation, congestion, transportation/commuting costs and depleting resources begin to grow.

b. Spatial analysis and geographical conditions influence the space and size of towns

The location and central place theory provide a theoretical background to further build on the topic of spatial distribution. The location theory has been highly recommended by Gorter and Nijkamp (2001), when conducting research within the field of economic geography and regional economics, as it intends to address the numerous questions regarding economic activities, specifically, where various activities are located and why. This core theory originated from classical economics which was seen as a response to the ignorance of space which was made in traditional economic analyses (Dawkins 2003). The theory has been evolved over the years by several economists, to focus on various aspects pertaining to city growth and formation. Von Thunen proposed the agricultural location theory in 1826 (O'Kelly and Bryan 1996), while Webber (1985) focused on the industrial location theory. The central place theory was introduced by Christaller (1933), and the economic location theory proposed by

Losch (1954) attempts to bring the concept of city growth patterns into perspective with regard to number, size and location of human settlements.

The central place theory seeks to establish the number, size and location of a settlement within a residential system. Morrill (1963) elaborates that the theory attempts to find out how large an area is necessary to successfully support a town, the efficient spacing of human settlements, and the hierarchy of human settlements patterns. The central place theory emphasises that in any given region there can only be one central point/major city. Surrounded by a series of smaller cities which are connected by various networks allowing the flow of people, information, and transportation (Mohanty 2019). The appropriate city size is determined by two fundamental concepts: range and threshold. The threshold refers to the minimum population required to deem a service viable, and the range refers to the maximum distance a consumer will travel for a good/service. The core purpose of the central place theory aims to establish the most efficient division of space and arrangement of activities (Morrill 1963). Looking at the industrial location theory, this focuses on the distribution of activities which serve regional and national markets (Morrill 1963). The theory depends on multiple resources, transportation networks and labour markets. Activities pertaining to this theory are of greater importance than those of the central place theory, with regard to the support of urban populations. The location theory and central place theory have contributed immensely to the concept of spatial distribution and patterns. Morrill (1963) states that both theories are necessary to form a realistic urbanisation model.

The concept of spatial integration regards space as a network which is held together by centripetal forces – this forms the basis of most growth pole theories (Dawkins 2003). Dawkins (2003) states that the Growth Pole Theory was originally formulated in the 1950s, by French economist Francois Perroux, and was later expanded by Jacques Boudeville. Perroux focused his research on space within the economic context. His arguments were derived from the Schumpeterian theory, according to which growth was essentially identified as an uneven process that manifests in discontinuous jerks and spurts. As per Perroux, a growth pole refers to the linkages between industries and firms (Dawkins 2003). He believed that economic development and growth occur at specific points or poles within a region, and the benefits from these poles are spread adjacently, through pre-existing or new linkages. Boudeville moves away from the economic context and places the theory into a geographic

context (Constantin and Radu 2019). He refers to a growth pole as the presence of propulsive firms and industries which generate sustained regional growth through linkages with other firms within the region (Constantin and Radu 2019). By the 1980s, the theory was abandoned as a result of displeasure with the lack of consistency between the key concepts of growth poles and empirical reality. There have also been cases where economic growth has occurred without the presence of growth poles, which means that growth poles are not essential for economic growth.

As per Morrill (1963), migration is implied based on the growth of cities, with regard to the location and concentration of actives within the city in question. While there are several types of migratory movements that can be examined, rural-urban migration is most associated with this concept. With regard to geographical conditions, Henderson *et al.* (2017) explain that areas with favourable topography tend to yield a higher population density. As a result, areas such as mountainous regions and deserts tend to have lower population densities, compared to areas which consist of a flat slope with easy access to the production of food.

c. Time/History

It is almost impossible to study any topic within the built environment in isolation, and the same applies to the spatial formation of cities and towns. The historical dimension and the element of time contribute immensely to the development of cities, as current city patterns are a result of a long interplay of forces (Atkinson 1998). Briefly looking at the history of city formation, Khan Academy (2021) informs us that it was only after the Neolithic Revolution that people began to shift away from a nomadic lifestyle of hunting and gathering. People began gathering around rivers and lakes to build permanent settlements, which gradually led to the formation of small cities. The formation of these densely populated settlements brought along specialisation and division of labour within the city. Economic activities, architecture and planning, centralised administrations, and political structures became core factors of cities. These factors influenced the pattern, distribution, and formation of settlements.

2.2. The vertical city and the horizontal city

Settlement patterns are continuously evolving, as planners and policymakers face the predicament of city expansion. Traditionally, settlement expansion took

the form of outward development and growth of a city which, according to Makkar (2017), is referred to as the horizontal city. This design was well known for its low-rise buildings, which accommodated a low to medium density population. However, many planners fear that this expansion may lead to urban sprawl. The concept of the vertical city was introduced as cities advanced and architects/engineers/planners developed new skills. Makkar (2017) refers to the upwards development and growth of a city as the vertical city. This concept is rather fascinating as it looks at the creation of modern and innovative building designs, such as skyscrapers, which aim to accommodate a medium to high density population. Most cities have adapted to and favour the concept of vertical cities, as this allows for the accommodation of more people. The eThekwini Municipality has incorporated both concepts into its city designs, allowing the city to enjoy the benefits of both concepts. The city continues to implement various densification and regeneration projects within the heart of the city, such as the Point Waterfront Development Project. While these projects are contributing to the upward development of the city centre, the municipality has formulated and implemented projects to allow of the city to simultaneously grow outward, with various developments on the urban periphery, such as the Cornubia Integrated Human Settlements Project.

2.3. Informal settlements and housing projects

As previously mentioned, slums, informal settlements, and squatter camps are a few of the many names used to describe the state in which the urban poor reside, however each has distinct features which separates it from the others. Slums are most commonly used to describe the poorest and most unsanitary forms of housing (Cirolia *et al.* 2017). An informal settlement is a form of slum, in which illegal housing units that are non-compliant with planning and building regulations, are constructed in a residential area (Hofmann *et al.* 2008). A squatter camp is regarded as a type of informal settlement where people have illegally occupied a piece of land (Cirolia *et al.* 2017). However, Srinivas (2005) mentions that the definition of informal settlements may differ in each country based on its legal and planning framework. According to Siqhwala (2002), an informal settlement is categorised by its basic structures and the material used to construct the dwelling. The land on which these settlements are developed is usually not occupied legally and the structure often does not adhere to building standards. Cities worldwide face the challenge of informal settlement

growth as a result of rapid urbanisation. The idea was that migrants would reside within city centres temporarily, until they found a stable job and a steady source of income which would allow them to enter the formal economy. However due to limited job opportunities and rapid urbanisation, the growth of informal settlements became uncontrollable (Cirolia *et al.* 2017). Basic infrastructure and service delivery cannot be provided to informal dwellers by government, due to lack of legal tenure to the land occupied. Despite best efforts these informal dwellers are unable to improve their current situation.

Nassar and Elsayed (2018) refer to informal settlements as a residential area consisting of self-made shelters which is illegally occupied by a residential community. The settlements are known to have poor quality of housing, lack of essential private and public services, and to lack integration with the broader community and the opportunities it has to offer. Informal dwellers attempt to construct their own dwellings using questionable materials, making them prone to disaster. They also tend to be rather low on the human development indicators, which include access to education and employment opportunities, and access to social services and heath care, which leads to many permanent health issues (Jordan 2020). Despite best efforts, these informal dwellers are unable to improve their current situation as they are unable to generate a high enough income in order to enter the formal economy. The UN-Habitat (2004) points out that, due to social exclusion, lack of empowerment and the pressure of residing illegally, all dwellers can do is survive.

The current situation of eye-sore and disaster-prone informal settlements that flood large cities, forming polycentric patches of commercial buildings and intertwining informal markets, was not the intention or dream of urban planners, who aimed to create garden cities that would promote harmony and high-rise cybercities (UN-Habitat 2004). The UN-Habitat (2004) suggests that informal settlement growth has increased uncontrollably due to unsuccessful policies, poor governance, various forms of corruption, inappropriate regulation, flawed land markets, poor financial systems and lack of political power. Many cities and agencies fail to recognise the severity of the situation, thus investing very little towards the provision of housing, jobs, and services for the growing urban poor. Informal dwellers are known to have no access to clean water, proper sanitation, a working stormwater system, or efficient waste disposal. However, very little planning has been done to address these problems – not forgetting future problems that may arise.

Housing policy in South Africa

With regard to housing policy, in 1994 the government began the attempt to provide people with shelter in order to reduce the imbalances of the apartheid regime with the implementation of the Reconstruction and Development Programme (RDP). This programme made provision for housing for South Africans with a combined monthly income of R3500 or less. The programme promised the provision of land which would consist of legal tenure, infrastructure, and basic services. Singh (2019) elaborates that these dwellings were formulated and constructed as per the Housing White Paper. Unfortunately, the programme focused on quantity rather than quality, resulting in unsustainable and in some cases uninhabitable housing.

In 1996, the Growth, Employment and Redistribution (GEAR) policy was adopted, to reinforce growth and promote the redistribution of employment opportunities (Huchzermeyer 2001; Singh 2019). In 2004, the Breaking New Ground (BNG) policy was created as a response to the shortfalls of the RDP. While the programme also aimed at the provision of shelter, it placed emphasis of the provision of a sustainable house, in terms of which the focus was placed on the quality of the dwelling unit. The programme also looked at the provision of an environment which was safe and secure, and which promoted access to much needed economic opportunities (Singh 2019). Despite this evolved vision, houses were still located on the outskirts of cities, isolating these residents from the CBD, which housed most supporting social facilities, and economic opportunities. These shortfalls led to the formulation and implementation of the Integrated Residential Development Programme (IRDP)

Informal settlement strategies

From a legal point of view, basic infrastructure and service delivery cannot be provided to informal dwellers by government due to lack of legal tenure to the land occupied. Also, households cannot be evicted from an informal settlement without provision of adequate alternate accommodation. Contrary to popular belief, many informal settlements have the potential to thrive, but tend to fail as cities consider them as unnecessary and extraneous. In the developing world, the majority of the labour force reside in such settlements. Strategic and holistic approaches are being formulated by international agencies, cities and action

groups, which will be incorporated into city plans and policies, also allowing the direct participation of informal dwellers to increase the success rate.

Section 26 of the Constitution of the Republic of South Africa mandates:

> the state to take reasonable legislative and other measures within its available resources to achieve the progressive realisation of the right to adequate housing (The Constitution of the Republic of South Africa, 1996).

Government attempted to address the challenge by building Reconstruction and Development Programme (RDP), and now Breaking New Ground (BNG) housing. The initiative looks at the provision of land containing legal tenure, basic infrastructure, and services. Government has experienced issues of limited resources and major backlog, both of which have led to frustration in informal communities. When working with the challenge of informal settlements, there are two dominant approaches utilised to develop and allocate social housing, i.e., the in-situ upgrading of informal settlements, and the eradication of informal settlements resulting in relocation of individuals (Ziblim, Sumeghy and Cartwright 2013; Magubane 2016). In this context, relocation projects involve total redevelopment, with the evacuation and relocation of informal dwellers to a suitable greenfield development elsewhere, while in-situ upgrading projects entail developing the existing informal settlement, without any evacuation or relocation, by gradually making provision for land tenure, infrastructure, and social/basic services to informal dwellers (Del Mistro and Hensher 2009; Franklin 2011; Ziblim, Sumeghy and Cartwright 2013).

As Franklin (2011) explains, greenfield projects have the tendency to disrupt informal dwellers' fragile community networks and livelihood opportunities, as relocation projects tend to lack/limit access to such services and community networks, thus he advocates for the in-situ upgrading approach. Government has identified this issue and has taken several steps to resolve it. With the implementation of the Comprehensive Plan for the Development of Sustainable Human Settlements in 2004, the national housing programme paradigm began to shift. Government began to emphasise the development of integrated human settlements by addressing the key settlement inefficiencies, thus moving towards compact settlements with a range of housing and social economic opportunities. Many existing housing programmes place emphasis on the

provision of subsided housing while neglecting settlement planning and the integration of different housing typologies and price categories (Department of Human Settlements 2009). The South African government intends to improve development approaches and management principles of urban spaces, to align with UN's Sustainable Development Goals (SDGs). Government is gradually transitioning towards addressing settlement inefficiencies to create cities and human settlements which are inclusive, safe, resilient, and sustainable (11th SDG goal) (UN 2015). The aim is not to simply provide housing, but rather to create housing, communities, and cities which are sustainable and resilient.

Greenfield housing developments

When looking at housing developments or projects, planners tend to use two important terms to describe the development sites, which are greenfield and brownfield developments. Greenfield developments refer to those constructed on virgin sites, which, as previously mentioned, is land that is unused, vacant and free of man-made obstacles (Koll-Schretzenmayr 1999), while brownfield developments refer to those constructed on sites which may be contaminated by previous developments and which have possible constraints such as existing structures. For this study, the primary focus is on greenfield developments which accommodate relocated dwellers (as explained above). The beauty of such developments is that the location is chosen by a strict criterion from the beginning, thus ensuring that the land is located in an area that provides opportunities for growth. Greenfield projects contribute to effective urban planning and design by creating built environments which are sustainable and harmonious for residents. The new neighbourhood design is inspired by the existing design, thus positively impacting on the neighbouring areas and the overall quality of the area (Ogunsanya 2009). The overall image and design of greenfield developments tend to be better due to the chance to create a desired settlement pattern/layout, dwelling density, desired aesthetic appearance and community shared spaces, with very few constraints.(Reeves 2005; Ogunsanya 2009).

In the context of housing projects, greenfield housing projects accommodate a greater number of people; however, this type of development promotes urban sprawl, and the time frame is greater than that of upgrading programmes. Despite providing services to settlements at a faster rate, in-situ upgrading

programmes have not been the most favourable option as not every settlement was suitable for upgrading, mainly due to its location. This predicament has led the eThekwini Municipality to formulate the Cornubia Integrated Human Settlement Project. Unlike other greenfield projects, the Cornubia development looks at creating a “city within a city”. The project is a mass development on previously vacant land, consisting of mixed-income housing typologies – therefore, the project can be regarded as both a greenfield housing project and an Integrated Residential Development Plan.

The Integrated Residential Development Programme (IRDP)

The Integrated Residential Development Programme (IRDP) promotes development of integrated settlements and communities by contributing towards the integration of several housing typologies at varying price ranges with access to various commercial, social and economic opportunities (Department of Human Settlements 2009).

The programme is believed to be a replacement to the Project Linked Subsidy Programme, as it strives to make provisions for the strategic formulation of integrated housing projects. It identifies housing recipients and makes provision for subsidised and finance-linked housing. The provision of subsidised and bonded housing allows for integration and provides substantial economies of scale appropriate to the location of the project, thus facilitating inclusionary housing development (Department of Human Settlements 2009). The programme introduces a phased approach with the intention of land acquisition where necessary, the planning of townships and the design of municipal engineering services, and the strategic provision of municipal engineering services (Department of Human Settlements 2009).

2.4. Residential satisfaction

Previous studies suggest that it is necessary to separate the terms residential satisfaction and housing satisfaction to grasp the true meaning of the concepts. The term house/housing can be either a verb or noun. Ruonavaara (2018) explains that a house is a good that can be developed and demolished, bought and sold, made use of, and experienced, thus it can be regarded as a material. However, “house” (to house) also refers to the act through which people are “housed”, that is, to be given shelter in the form of a house or dwelling unit. The

key function of a house is to provide shelter, safety and warmth to individuals and groups, thus making housing a necessity and an essential component for social and economic growth (Okeyinka 2014); furthermore, it promotes enhancement of daily activities (Melnikas 1998). Housing refers to more than just an individual's physical dwelling unit (Mohit and Raja 2014), but rather it is a combination of the social and physical aspects that formulate the housing system (Abidin *et al.* 2019). Housing can be regarded as a commodity, a tangible asset with the potential to be returned, and a fixed asset which is either owned or rented (Henilane 2016).

Looking at the term satisfaction, this can be defined as the contentment one feels when one has fulfilled a desire, need or expectation. Abidin *et al.* (2019) elaborate that the concept compares an individual's expectations to reality. This concept can be subjective and value-laden, as it is based on a set standard which is determined by an individual's experience and perception as a result of policy issues, major life events, and the surrounding environment (Mbhele 1998). The concept of "satisfaction" has appeared in a wide variety of fields and disciplines over the years, such as economics, law, religion, sociology, psychology, marketing and urban planning (Aigbavboa 2014).

Thus, residential satisfaction may be referred to as the level of contentment an individual achieves from his/her need and desire in relation to a house (Abidin *et al.* 2019). Research pertaining to residential satisfaction has piqued interest within the built environment sector, especially in the field of urban planning. Tan (2016) refers to residential satisfaction as an indicator of an individual's general view of their quality of life, while Amérigo and Aragones (1997) inform us that it is a global attitude representing the level of fulfilment of residents' needs and expectations. Residential satisfaction has been studied in several fields of research to evaluate the quality of different residential establishments and is regarded as a predictor of cognitive and behavioural characteristics of residents (Chen, Hall, Yu and Qian 2019). The concept has been explored from several dimensions and aspects by a range of professionals. As a *spatial aspect*, Onibokun (1974) states that residential satisfaction measures the level of satisfaction achieved with the dwelling unit, neighbourhood and surrounding area. Satsangi and Kearns (1992) speak to the *psychological aspect*, which is often used to determine residents' feelings towards their dwelling unit and the surrounding environment (Ogu 2002). As a *social aspect*, developers and policymakers use the concept to establish social indicators within the

community (Galster 1985). Enosh, Leslau and Shacham (1984) further explore the *environmental setting* and *aesthetic aspect*, while Momtaz, Rafieian and Aghasafari (2016) focus on the *economic value* and *managerial aspect*.

Several housing policies have incorporated the concept of residential satisfaction as a strategy to evaluate and represent the true level of success achieved by such projects (Wang and Wang 2016). However, researchers have found a gap in several residential development plans, which is the lack of a post management phase/satisfaction study. The inclusion for such a phase is vital, as it will assist and guide planners in the development of future projects (Wang and Wang 2016).

2.4.1. Residential satisfaction theories

The *Theory of Human Motivation* (Maslow 1943) focuses on the psychological aspect of human satisfaction and claims that such satisfaction can be ranked in a hierarchical system (Figure1). According to the theory, one needs to work one's way from the bottom of the pyramid upwards, in order to successfully achieve human satisfaction (Maslow 1943; Emami and Sadeghlou 2020). *The Social Comparison Theory*, by Festinger (1954), measures satisfaction levels by comparison of individuals through self-enhancement and self-evaluation. Still focusing on the psychological aspect, the *Cognitive Dissonance Theory* (Festinger 1957) suggests that an individual depends highly on the psychological consistency between life expectations and reality, to allow for the reduction of stress. While the *Hygiene-Motivation Theory* or *the Two Factor Theory* (Herzberg 1959) is focused on satisfaction in the workplace, it can also be adapted to apply in this study. This theory states that specific variables promote and motivate satisfaction, while other variables result in dissatisfaction. This theory proves that the elimination of variables and factors of dissatisfaction do not necessarily result in satisfaction (Herzberg, Mausner and Snyderman 1959; Emami and Sadeghlou 2020). These theories of satisfaction depict the discrepancies between an individual's outside world and his/her inner world as a process, constantly fluctuating and influencing each other (Herzberg, Mausner and Snyderman 1959; Emami and Sadeghlou 2020).

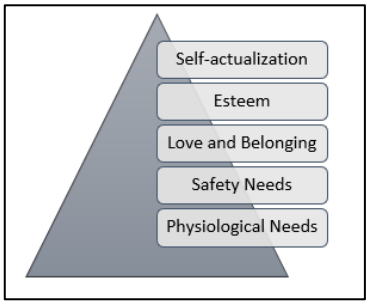


Figure 1: Maslow's Hierarchy of Needs- *(Maslow 1943; Salbiyah et al. 2019)*

Housing need is a vital component in reaching the desired level of residential satisfaction of an individual. According to Rossi (1955), an individual's housing needs and expectations continuously change as he/she moves through the various life cycle stages. Rossi (1955) elaborates that an individual's housing aspirations and needs may fluctuate as one progresses through life. Rossi's (1955) Housing Needs Theory established that the discrepancies between an individual's current housing situation and his/her desired housing situation results in frustration, distress and dissatisfaction within the residential property and community. In most cases, residential mobility occurs as individuals move/migrate to an area that will satisfy their present housing desires and needs (Emami and Sadeghlou 2020). Morris and Winter (1975) introduced the concept of housing deficits to conceptualise residential satisfaction, through the development of the Housing Deficit Theory. Individuals are known to judge their housing situation and condition on family and cultural norms. In this context, cultural norms are established by general social standards and family norms are established by the individuals' own standards of housing. According to Morris and Winter (1975), the discrepancy between a household's actual housing situation and their cultural norms will result in a normative housing deficit, which will need to be rectified due to internal and external pressure. The process of rectifying the deficit varies, depending on several internal and external factors. Morris and Winter (1975) suggest three behavioural responses: residential mobility, residential adaptation, and family adaptation. Residential mobility is often confused with migration. Migration refers to greater distance movement which is driven by economic opportunity and climate preferences, whereas residential mobility refers to shorter distance movements which occur within a single housing and labour market (Morris and Winter 1975). Residential adaptation looks at the different methods and changes households can engage in to improve their current housing situation to meet their desired needs. Morris and Winter (1975) suggest household additions, alterations, remodelling and alternative functions of rooms. The authors elaborate that this movement is a behavioural manifestation of residential adaptation which is fostered by national programmes such as grants and loans for rehabilitation and home improvement. According to Morris and Winter (1975), family adaption involves the strategic alternation of a household's composition to suit and satisfy the current or expected housing. The suggested classes of action include alternations with childbearing and the entrance/departure of household members. Galster's (1985) Psychological

Construct Theory explains that individuals develop a reference condition for each component of their residential setting, resulting in the installation of a mindset of the residential situation that they believe they should possess. The development and establishment of this reference depends on the individual's self-assessed needs and aspirations. If the expected referenced threshold is met, a psychological state of satisfaction is met. However, in the case that the reference condition is not met to the expected threshold, one of two outcomes is predicted: an individual may try to resolve the incongruence by mental adaptation such as reducing their expected aspirations, or by changing the evaluation of the current situation (Mohit and Raja 2014). However, there will be a state of dissatisfaction in the case that an individual fails to successfully adapt to the residential area. This results in the alteration of conditions or moving to a more compatible residential area (Mohit and Raja 2014).

2.4.2. Residential satisfaction models

Residents, the socio-physical environment, and satisfaction are the three key components that create an interrelationship between residents and their surrounding environment.

a. Michelson's Integrated Model

This integrated model focuses on the resident's needs, choice, mobility, environment and behaviour. Michelson and Michelson (1977) outline various concepts which play a vital role in the model: physical settings, aspirations and expectations, perception and culture, and behaviour patterns of residents. The theoretical framework looks at residential satisfaction with regard to the resident's mobility in relation to their place of residence. Firstly, the model assumes that the residents' primary demands and aspirations influence their interactions with their housing environment. According to Michelson and Michelson (1977), residents conduct an assessment of the various factors (spatial/social/psychological) through perception, resulting in shaping both the foreseen and unforeseen behaviour of residents. The model assumes that changes in residents' primary needs have a direct impact on their overall evaluation of the housing environment. This results in residents developing a positive or negative perception of their physical environment. In the case of a negative perception (dissatisfaction), residents may decide to relocate or alter their existing environment (personal space) to meet their newly developed

aspirations and expectations. The model has been critiqued that lack of affordability or lack of access to a better setting may block many residents in pursuing their new aspirations and expectations.

b. Habitability Model – Onibokun (1974)

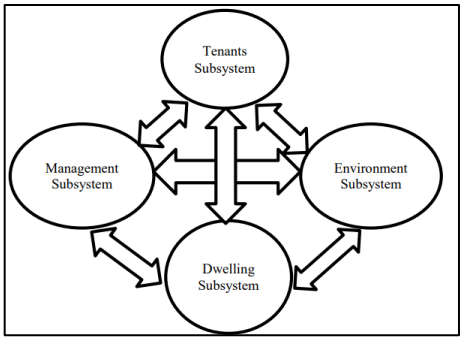


Figure 2: Habitability Model *– Onibokun (1974)*

An in-depth study conducted by Onibokun (1974) attempts to develop a research methodology to assess an individual's satisfaction with housing. He hypothesised that researching habitability refers to assessing the satisfaction achieved by a resident living in a specific dwelling unit, which is generally a component of a housing project within a community that is under institutional management. While previous studies focused on singular aspects (social, economic, political, environmental, pathological and psychological), Onibokun (1974) proposes an approach whereby interdependent factors are analysed and researched in relation to each other. In the context of his study, habitability refers to a type of tenant-dwelling-environment-management interaction system, thus creating a dwelling which is adequate and habitable by meeting their housing needs and expectations. Housing habitability systems regularly involve four interacting subsystems, which, according to Onibokun (1974), include tenants subsystem, dwelling subsystem, management subsystem, and environment subsystem. Onibokun (1974) elaborates that the suitability of a dwelling unit is influenced by the internal space, household services, structural quality, amenities, and the quality of the internal environment. He argues that the dwelling unit is considered as an important subsystem of a housing habitability system, however the housing unit is only a part (a subsystem) of the whole (the system), which constitutes housing habitability. The habitability model, shown in Figure 2, thus highlights the variables that will impact the level of satisfaction with a dwelling. In the context of this model, the inhabitant is the recipient of all of the feedback from all of the subsystems and is therefore the central focus of the conceptual model of habitability. However, Onibokun (1974) states that this concept remains limited with respect to the situation of housing satisfaction.

c. Environmental Satisfaction Model – Marans-Rodger

Marans and Rodgers (1975) developed a model of environmental satisfaction which focused primarily on the external factors that influence residential satisfaction. The model hypothesised that the level of satisfaction an individual achieves with a dwelling unit is dependent on their perception of neighbourhood characteristics. These include the physical environment and the quality of supporting facilities. According to Marans and Rodgers (1975), the model seeks to research the manner in which objective attributes of the environment are related to the experiences of individuals within that environment. The model further suggests that the evaluation and overall satisfaction level of individuals are directly linked to the individual's characteristics. While the model addresses personal characteristics through neighbourhood and community attributes, this has proven to be inadequate to truly assess personal characteristics. The limitation experienced by this model resulted in the formulation of the Path Analysis Model by Hourihan (1984).

d. Path Analysis Model – Hourihan

The key concern with the Path Analysis Model is the relationship between personal characteristics of individuals and their levels of satisfaction. Hourihan (1984) conceptualises that personal characteristics are inter-related and are the starting point of residential satisfaction. He elaborates that these characteristics include the measure of social class, local social attachments, residential experience, life cycle stages and housing type. Hourihan (1984) also found neighbourhood attributes to play a direct role in the contribution to residential satisfaction. These characteristics include safety, design of dwelling unit, stability, and friendliness.

e. Francescato Model

The comprehensive model, proposed by Francescato, Weidemann, Anderson and Chenoweth (1974), aimed to research the relationship between man and environment, in order to understand the user's needs. The study conducted brought to light several issues with regard to residents' housing, which resulted in the formulation of satisfaction measures. The model discovered numerous issues to be direct and indirect predictors of residential satisfaction, which were later used as prototypes for satisfaction studies. Francesco's model identifies

housing environment as a multi-faceted character. The model further identifies vital predictors which are linked to the physical and social environment. This led to the concept that residential satisfaction can be categorised into three levels: the residential (physical) environment, the social environment and the housing (individual) environment. The model assumes a direct relationship between satisfaction, residents' characteristics and socio-physical components. Francescato *et al.* (1974) state that the level of satisfaction varies, which results in different expectations by various individuals and social groups, therefore one cannot assume a base satisfaction indicator. While the model includes the most basic components, it has been criticised for not including residents' behaviour and values, and for the omission of various levels of the physical environment such as home, neighbourhood and city. Lastly, the model primarily focuses on satisfaction on only one side of the equation while the human behavioural aspects were not considered.

2.5. Conclusion

Chapter two has provided an in-depth review of the relevant literature related to residential satisfaction with specific reference to informal settlements and housing development projects. The chapter begins with a discussion of the conceptual and theoretical framework by examining key structuring concepts and their underlying theories. The framework was built on three important concepts, i.e., urbanisation and spatial distribution, informal settlements and housing projects, and residential satisfaction. The next chapter examines the international precedents and the case study.

CHAPTER 3: INTERNATIONAL PRECEDENTS AND THE CASE STUDY

No research should be conducted or concluded in an isolated bubble – it is important to consult with previous research studies of similar nature to inform the outcome and conclusion. This chapter explores international literature which focuses on informal dwellers, relocation projects, greenfield housing projects, and residential satisfaction. Previous research studies allow us to explore the various dimensions and the relevant lessons experienced and learnt. This chapter also introduces the case study of the Cornubia Integrated Human Settlement Project, in detail.

3.1. International precedents

3.1.1. The developed world

Due to the low percentage of informal settlements within the developed world, the majority of the residential satisfaction studies looked at social housing projects, new residential developments, and relocation projects which considered the movement of individuals from formal housing (social housing or low-cost housing) into new developments.

With regard to the trends identified within the developed world, Australia has shown several cases which contribute to the concept of this study. Australia is the smallest continent but one of the largest countries in the world, and is found in the Southern Hemisphere between the Pacific and Indian oceans (Fernandes and Varley 1998). The country has always been known for its massive pieces of land with a relatively small population size. However, this has changed as the current rate of growth has increased drastically and it is predicted that over 40 million people will reside in Australia by the middle of the century. As mentioned previously, the three fundamental drivers of population growth in cities are birth rates, deaths rates, and migration. The year 1976 was the last time that the country experienced a birth rate which was sufficient to maintain a balance in population growth. Meanwhile, the life expectancy of individuals borders around 80.5 (males) and 84.6 (females). Since government cannot control the birth and death rates by means of policy, this leaves migration as the only practical lever

of population control. Statistics from the past decade have shown that 1.0% of growth additional pressure is added onto resources and infrastructure.

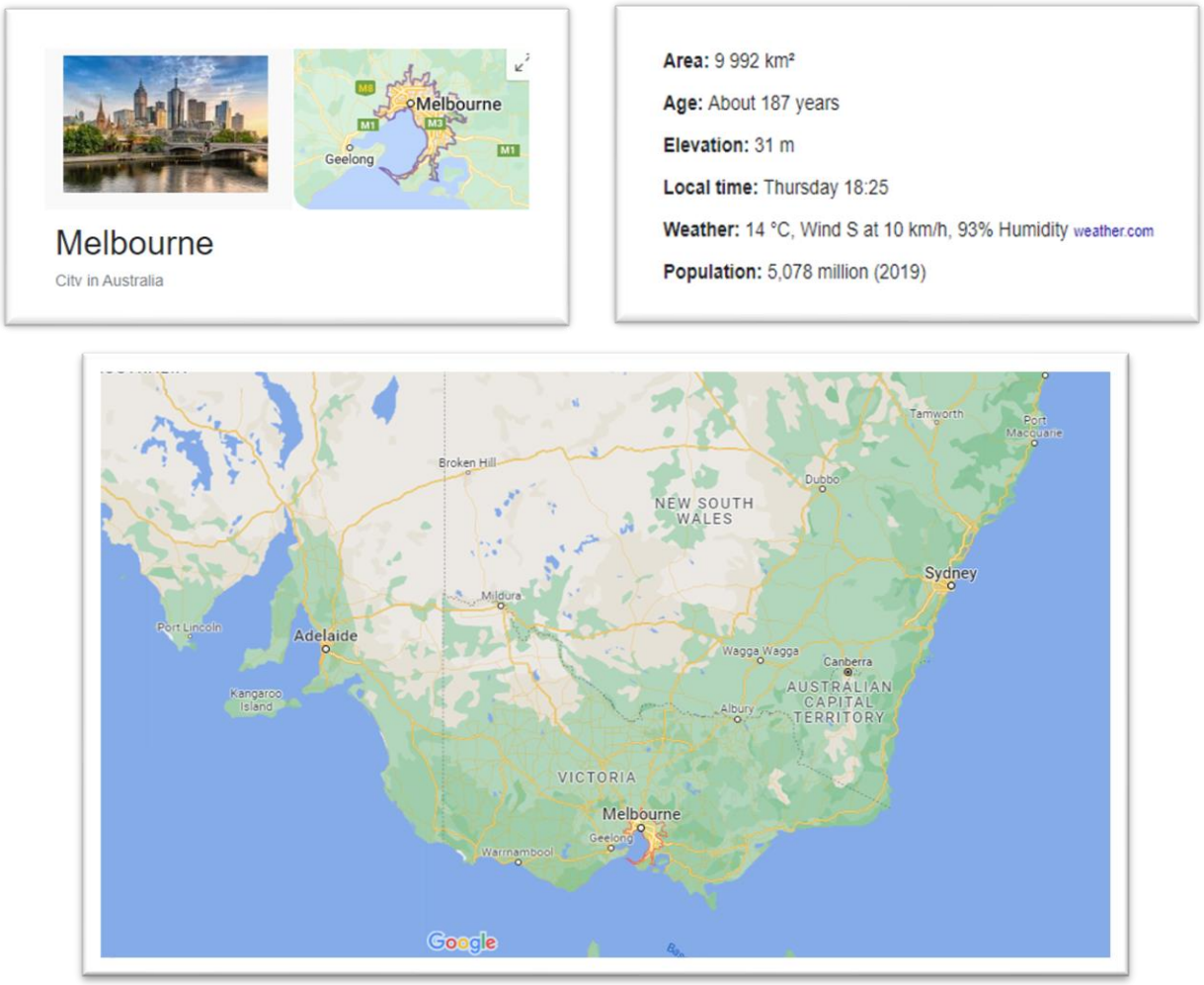


Figure 3: Locality Map – Melbourne, Australia

Source: (Google Maps 2022a)

Melbourne is the capital of Victoria, Australia, which is located at the head of Port Phillip Bay on the south-eastern coast (Figure 3). This mega city falls second to Sydney with regard to population growth and is labelled as an important economic and cultural centre. Melbourne's urban sprawl has extended northwards as government implements several housing projects to be developed on massive pieces of greenfield land. These areas are growing at twice the rate compared to the rest of the country and contribute to 11% of GPD. On the northern outskirts of Melbourne is Australia's fastest-growing suburb Mickleham, Victoria. This suburb has made several promises with regard to the perfect city life – the Australian dream (Burin and Park 2018). With roughly

10 000 new people entering Mickleham each year, residents have brought forward several major concerns, including packed public transportation, congested roads, and limited childcare and development resources. There have also been records of conflicting views from several residents, with regard to the number of residents the area can accommodate. Cheap housing, greenfield developments, and state developments are the current trends of the Australian government. These trends have rapidly increased the rate of urban sprawl, thus transforming suburban life and the notion of Australia. These suburbs are growing at twice the rate compared to the rest of the country as they have doubled in the last 25 years. The issue of long-distance travel also has an impact on everyday social activities, such as visiting family and friends, buying groceries, and other everyday essentials. With regard to employment, the number of workers in suburban areas continues to grow, while the number of jobs remains the same. This means that residents must travel further to find employment, adding enormous stress on roads and transportation, and leading to congestion.

With regard to Australia, and specifically Sydney, informal settlements are officially referred to as slums. However, this term is rarely used as it is considered offensive. Briefly looking at the history of Sydney's housing development, significant recurring patterns of booms and bursts were identified from around the 1840s. Several houses of poor quality were built hastily on large pieces of vacant land. Poverty and misery combined with poor quality of housing led to the creation of informal settlements resulting from international migration, while births only contribute 0.7%. Sydney, the capital of New South Wales, is located on Australia's south-eastern coast and is the largest city in the country, with one of the most important ports in the South Pacific, due to its strategic coastal location. The city has also been labelled as an important economic and cultural centre. Sydney's inner-city housing patterns show mostly private rental accommodation with a constant increase in homeowners and a handful of public housing offerings. The estates consist of mostly public housing with a handful of private rental properties. A fairly good proportion of homeownership and public housing can be found in immigrant areas; however private rental is also increasing. The traditional informal settlements in the city have transitioned from squalor to mixed-income status. Sydney no longer shows a record of informal settlements, however, there has been a handful of rundown areas recorded, along with areas which consist of a relatively high

concentration of disadvantaged individuals. The re-emergence of informal settlements is a concern due to the multiculturalism and spatial separation of social and income groups in the city.

With regard to public housing, several poorly maintained developments have been flagged as rapidly deteriorating and are the primary focus of several social interventions. The majority of the population increase has been recorded approximately 60km south-west of the city. This increase is due to the increase in immigrants, access to affordable housing and several support mechanisms. The city shows a clear division between the residents who have located around the city centre, and the older residents of poor households gathered to the west. According to Forster (2006), the traditional urban form and structure of Australia focused on a rather suburbanised area, which consisted of fairly low density detached dwelling units. Additionally, these suburbanised areas were highly dependent on vehicular modes of transportation. However, the urban form is changing significantly as policymakers have adopted increasing population density as a strategy for maintaining and managing urban growth. This method also assists in reducing transport congestion, urban sprawl, socially isolated communities, and water and energy infrastructure demands. Worldwide, a higher dwelling unit density approach has been proposed in order to address the rapid increase in urban population. Unfortunately, many residents have expressed dissatisfaction with such projects, as many view extreme density housing as an unfitting long-term solution. A research study was conducted by Buys and Miller (2012), which looked at “a residential satisfaction study in inner urban higher-density Brisbane, Australia”, focusing on the role of dwelling design, neighbourhood, and neighbours. City planning promotes urban consolidation policies which aim to intensify the dwelling growth within the urban footprint, with the strategic implementation of diverse medium density housing typologies. Sajan (2016) conducted a residential satisfaction study involving medium density apartment housing in Sydney: *A Case Study of Fairfield*. The primary concern was with residents’ reluctance to adopt to an apartment living lifestyle. After further investigation, the findings reflected a rather high overall level of residential satisfaction from the residents in question. However, residents have recorded issues concerning certain design factors which have negatively impacted on resident’s level of satisfaction. With regard to the study conducted in Brisbane (Buys and Miller 2012), similar patterns and findings of satisfaction were identified and obtained. The overall level of residential

satisfaction achieved was rather high, with a few negative comments regarding locality, noise, and limited parking bays. The findings and results obtained from both studies have contributed immensely to the planning sector in Australia and will also benefit future studies internationally.

3.1.2. The developing world

In the developing world, housing is a more critical factor in a person's lifestyle than in the developed world. Due to the rapid urbanisation rates, there is a drastic increase in population in the majority of developing countries. This has led to the problem of housing shortages.

Every day the urban population grows as people move to cities in search of a better life. However, in developing countries, many face difficulties in accessing economic opportunities. They are forced to reside informally in slums, informal settlements, and squatter camps, with little to no access to basic services and facilities (Alliance 2006). Due to the high percentage of informal settlements in the developing world, the majority of the relocation projects look at the movement of individuals from informal housing (shacks/slums/informal settlements) to temporary camps and greenfield developments, which are generally situated on the outskirts of the urban core. When looking at the developing world, the trend identified is that the majority of the relocation projects formulated and implemented have been as a response to the impact of climate change. As many informal dwellers reside in areas which are disaster prone, these projects aim to move these to a safer environment and to facilitate future climate change adaptation in the city.

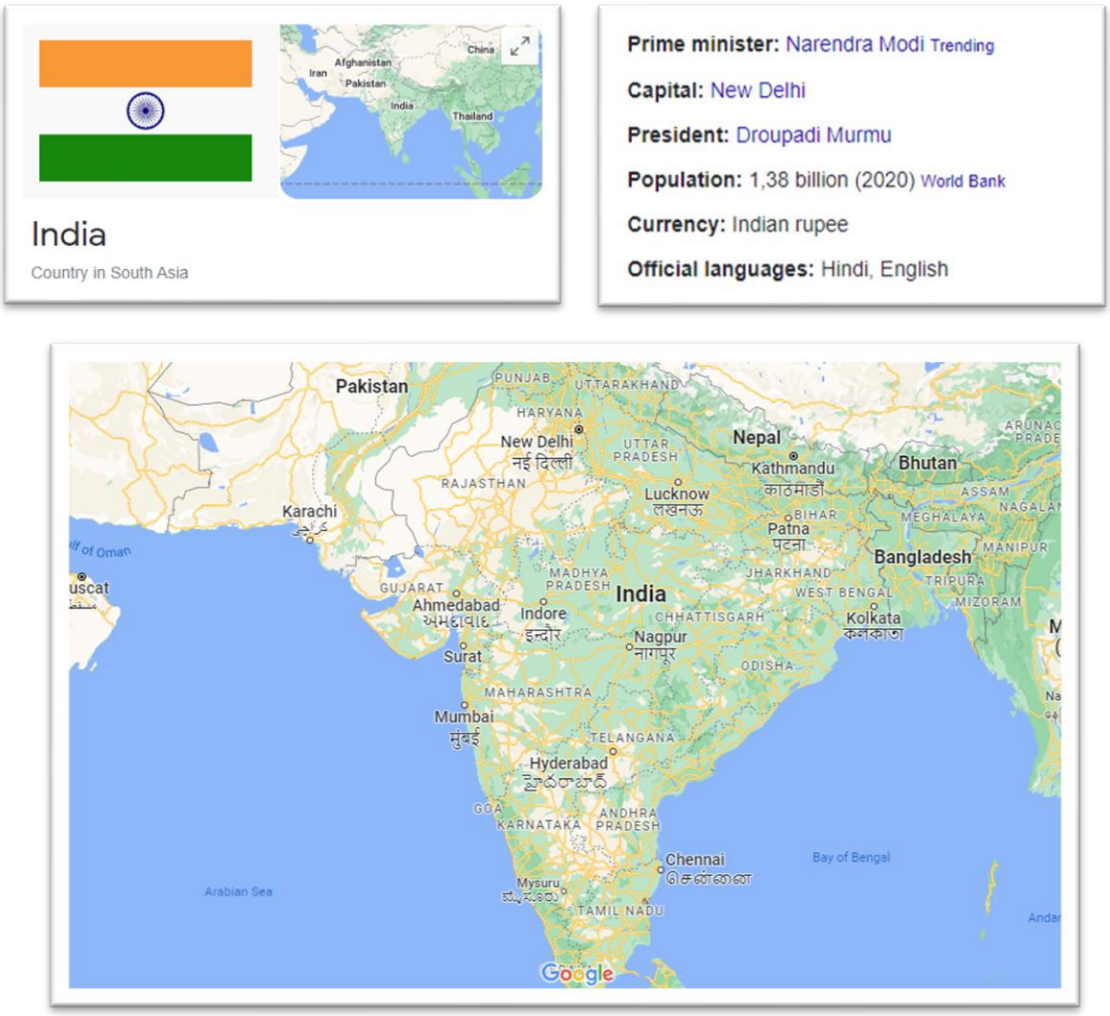


Figure 4: Locality Map – New Delhi, India

(Source: Google Maps 2022d)

Looking more closely at the developing world, India has produced a handful of cases that contribute towards the concept of this study. India, officially the Republic of India, is a country in South Asia, bounded by the Indian Ocean to the south, the Arabian Sea to the southwest, and the Bay of Bengal to the southeast (Asumadu-Sarkodie 2012). It is one of the oldest civilisations in the world, with a mosaic of multicultural experiences. India is the second most populated country, the seventh largest country by land area, and the most populated democracy in the world. The country's rich heritage and attraction has resulted in a positive impact on the tourism sector. India's population and economic growth have contributed to urbanisation in the country. India's urban areas are major contributors in the country's economy, a trend that has also been identified in most countries worldwide. The urban areas in India are major contributors to the country's economy and contribute to about 2/3 of the economic output. In the year 2021, India recorded a total population of

approximately 1.39 billion, showing a significant increase of 13 million (+1.0%) between January 2020 and January 2021 (Data Reportal 2021). With regard to urbanisation, the country recorded an urban population of 35.2%, and a rural population of 64.8% (Data Reportal 2021). According to O'Neill (2021), India has shown a 4% increase in urbanisation in the last decade, this author notes that urbanisation has accelerated with the increase in telecommunications and IT job opportunities in the private sector. The life expectancy in the country boarders around 69.2 years (males) and 71.8 years (females). Infant mortality has been recorded as 26.2 infant deaths per 1000 live births and death under 5 years old has been recorded as 32.9 per 1000 live births.

Ahmedabad, in western India, is the largest city in the state of Gujarat and the seventh largest city in India, with an area of 190.84 km^2. The city is centrally positioned in the heart of Gujarat, with the Sabarmati River running through its centre. Ahmedabad is strategically located, linking it to all the important cities in the country by rail, roads, and airways systems. The city has also been famously known as a trading city.

Looking at the informality aspect in India (focusing on Ahmedabad), Bhatt (2003) has grouped these lower income areas into two types, i.e., chawls, which are housing units that were built around the textile industry for workers; and slums, which refers to areas where individuals have illegally occupied borderline areas of the city (Gohil and Gandhi 2019). These slums have poor access to basic services and facilities, and general situate themselves along riverbanks and in any vacant open spaces, which tend to be unstable and a disaster risk (Gohil and Gandhi 2019). Slums and chawls began to mushroom around the textile mills and factories during the late 19th century, to accommodate workers (migrants). According to Bhatt (2003), those who resided in chawls were believed to have moved into the city during the last century, while those who resided in slums were believed to have moved after Independence. The first low-income housing units were developed by the mill owners to accommodate their labourers. The housing units were strategically built for labours to rent, as they were single room row housing units. Rent on these units was extremely low and remained so due to the rent control act. As a result of this, most owners lost interest in maintaining these units, which led to deterioration of the overall quality. There were even cases where owners sold their units at nominal prices. Mills were sold or closed due to the textile industry crisis; however, the attached chawls remained. Many of the workers remained in the chawls as retrenchment

did not affect their rent (due to the rent control act), it only affected the expenses experienced by residents on maintenance (Bhatt 2003)

The first area to experience industrialisation was Eastern Ahmedabad, which falls within the Ahmedabad Municipal Corporation (AMC) limits. According to Bhatt (2003), this region has a large number of chawls, with approximately 44% of the total housing units in the AMC region being found in this area, while 54.8% of the total dwelling units in this region fall under the category of chawls and slums. Bhatt (2003) adds that, this accounts for about 75% of the chawls and 47% of the slums in the city of Ahmedabad. Looking at west Ahmedabad, around 27.9% of housing units are classified as slums and chawls, which accommodate the middle to low-income groups.

Since the 1950s, several initiatives have been attempted to better the situation in informal settlements. The original approach was slum clearance; however, government has moved towards environmental improvement, informal settlement upgrading, and informal settlement or slum networking which was more community influenced. Bhatt (2003) notes that the focus was then on the slum networking approach, which was the approach meant to bring together local authority, communities, and NGOs to brainstorm approaches to improve the current situation of slums. Formal housing programmes for low-income groups were implemented by the Gujarat Slum Clearance Board (GSCB). The board constructed a total of 16699 dwelling units, of which 4104 units were allocated for low-income groups and 12595 units were allocated for the economically weaker groups. They also investigated upgrading these informal areas; however, this approach had a set of limitations as a result of the procedures involved. Due to constraints and the incapacity to produce resources for upgrades and improvements, this initiative was ended (Bhatt 2003). Several programmes were developed by the AMC to assist with slums, including the Environmental Improvement of Urban Slums (EIUS) programme, the Urban Community Development Programme (UCD) and the Urban Basic Services for the Poor (UBSP) programme. The AMC operated as a welfare state until the early 1990s, aiming to better the lives of the urban poor by means of implementing a regime which did not enforce anti-poor regulations, while enduring squatter settlements on public and private land (Joshi 2014). An alteration to the Bombay Municipal Corporation Act 1949 in the 1970s made it compulsory for the AMC to allocate at least 10% of its revenue for improvement of access to basic services in slums and chawls (Bhatt 2003). The AMC allowed

access to urban services by slums in the eastern suburbs. They now coordinate and facilitate the activities of other agencies, under the Slum Improvement Partnership, while allocating an amount of the costs to link slum upgrading with city-level service-delivery standards. However, the AMC were unsuccessful in ensuring a full inclusion of many of the new insights in their overall urban planning. They are also unwilling to provide secure tenure for periods longer than 10 years, which has a negative reflection. It has also been identified that the web of regulatory approaches and the compound procedures of the urban planning process have not assisted the urban poor.

As the city continues to grow, and with the implementation of urban beautification and infrastructure projects, a great number of urban poor households have been displaced. These include projects such as the Sabarmati riverfront project, the Kankaria lakefront project and road-widening projects, including for the Bus Rapid Transit System (BRTS)) (Mahadevia *et al.* 2017). Many of the urban poor were relocated to public housing provided by the AMC under the Basic Services to the Urban Poor (BSUP) programme of the Central Government's Jawaharlal Nehru National Urban Renewal Mission (JNNURM) (Mahadevia *et al.* 2017). Most of these houses were built in Vatva, which was a great distance from their original residence.

A study was conducted by the Centre for Environmental Planning and Technology (CEPT) which focused on the "Relocation of slum dwellers far away from present habitats reduces effective income: Ahmedabad, CEPT" (Mahadevia *et al.* 2017). The researchers state that a form of structural violence was inherited in the development paradigm adopted in Ahmedabad over the past decade, which was due to the constrained mobility and stressed livelihoods manifested by the relocation of informal dwellers (Mahadevia *et al.* 2017). Distant relocation with lack of appropriate, affordable and available transport facilities have a negative impact on mobility, work and the livelihoods of relocated dwellers (Mahadevia *et al.* 2017). While informal dwellers may have previously found their workplaces somewhat easily accessible, distant relocation has resulted in a negative impact on dwellers as the Vatra sites are approximately 7-15 km from their previous places of residence. Dwellers who walked to work were now forced to used motorised transportation due to the distance. Not only does this add extra travel time, but it is also an additional daily cost. Residents were impacted negatively in gender-specific ways as well. Women who used to work daily had to cut down their working days or leave

work completely, as juggling paid work and housework became harder with the extra travel time added. Furthermore, from the perspective of casual workers who seek jobs in the city centre daily, having to pay transport fees every day is not in their best interest as such work is unpredictable. These obstacles have forced many dwellers to leave their jobs, which has severely impacted their livelihoods. For the dwellers who remained at their previous jobs, the additional travel costs have reduced their effective income. The researchers further mention that many local vendors use vending carts which they park at home and push to markets. The additional distance has forced them to rent a spot and/or a vending cart in the market at an additional cost. In the case of domestic workers, many of them who used to walk from their place of residence in the Paldi, Lal Darwaza, Khanpur and Shahpur areas must now spend a quarter to one-third of their income on transportation (Mahadevia *et al.* 2017). Another issue identified is that the nature of job opportunities available nearby the new settlement area does not match the skills and experience possessed by the dwellers. The new location consists primarily of industrial work, which can be found at the Vatwa GIDC industrial estate. The relocated dwellers, however, have dabbled mainly in informal trading, domestic help, or temporary work in construction.

Secondly, the lack of access to basic services and social facilities, specifically lack of access to adequate and affordable transportation modes, has impacted negatively on the lives of residents (Mahadevia *et al.* 2017). Social amenities were more accessible at their previous place of residence compared to Vatva. The area has only one municipal primary school which is within walking distance, and other essential amenities (public healthcare facilities, higher educational facilities, and recreational open spaces and/or sports facilities) require further and higher travel costs. These additional costs have also had a negative impact on the livelihoods of residents and have moreover led to children dropping out of school and families compromising on healthcare (Mahadevia *et al.* 2017).

Thirdly, the livelihoods of residents have been negatively affected by the drastic increase in basic services and maintenance expenses (Mahadevia *et al.* 2017). Residents have experienced increased expenditure on basic services and maintenance, and electricity bills, for example, are much higher than those received at the previous residence (Mahadevia *et al.* 2017).

Lastly, the resettlement sites are somewhat unsafe in the context of crime, creating several constraints to women's mobility, and there were little to no planning and governance dynamics (Mahadevia *et al.* 2017). The Vatva resettlement sites have recorded cases of robbery and illegal activities, sexual abuse and harassment, kidnapping, and human/child trafficking. Residents who have not directly experienced these crimes also live in fear, and as a result many residents (especially women) have left work, which has a negative impact on their livelihoods. Many residents are forced to make use of shuttle/shared auto-rickshaws, a form of Intermediary Public Transport (IPT). The auto-rickshaws generally follow a fixed route with fixed fares and illegally transport double the number of legally permitted passengers. These overcrowding issues force women to sit in close proximity to men, which may not be comfortable (Mahadevia *et al.* 2017).

Mahadevia *et al.* (2017) suggest that displacement should be minimised; however, if unavoidable, resettlement sites should be within close proximity to their original places of work, to minimise/avoid negatively affecting residents' mobilities and livelihoods. Also, public housing projects should be in areas which possess good quality, functioning social amenities, thus minimising the likelihood of additional transportation costs. According to Mahadevia *et al.* (2017), the improvement and development of livelihoods is vital for households, to allow them to gain the economic capacity to sustain the increase of expenses in relation to basic services, facilities, and maintenance in public housing.

3.2. The case study: The Cornubia Integrated Human Settlements Project

3.2.1. Background and locality

The Cornubia Integrated Human Settlements Project has been selected as the subject area for this research study. Locality wise, the study area is strategically located within the northern region of the eThekwini Metropolitan Municipality situated in KwaZulu-Natal, South Africa. The subject area is bordered by the N2 freeway, the M41 arterial, and the Ohlanga River. The development is situated on a former sugarcane field which is between townships that have historically scars by the apartheid regime, modern high income residential estates, key shopping malls, and highly productive office parks of the Umhlanga Ridge (Sutherland, Sim and Scott 2015; Ruiz 2017; Jordan 2020) (Figure 5).

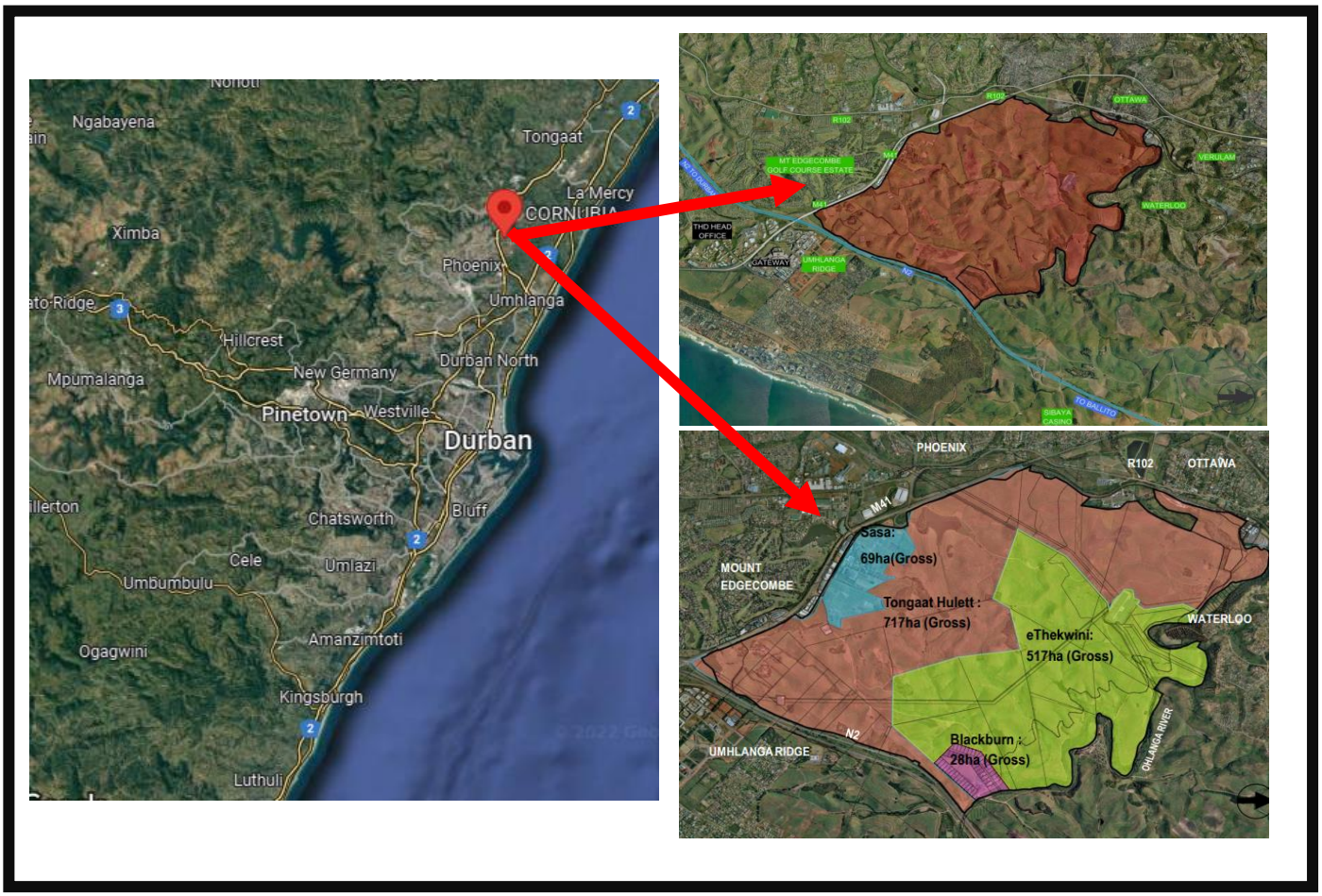


Figure 5: Locality Map – The Cornubia Development

(Source: Google Maps 2022c), (Iyer 2014)

The Cornubia Integrated Human Settlements Project is a mega joint project between the eThekwini Municipality and Tongaat Hulett Pty Ltd. Several discussions and negotiations took place between the two entities, resulting in the development of a Framework Plan which was ultimately facilitated by the private consultant Iyer Urban Design Studio (Cooke 2014). This public-private collaboration intends to incorporate social housing and a variety of essential mixed uses, essentially creating its own activity node to promote the concept of *work, live, and play* in one development (Cooke 2014; Shange 2018). The study area was originally zoned for agriculture, and represented a buffer strip formed by the apartheid regime to create a segregation between different race groups (Cooke 2014; Shange 2018).

The project is aligned to the SPLUMA (Spatial Planning and Land Use Management Act) (RSA 2013) principle of spatial justice, as it intends to redress

and promote the integration of the previously disadvantaged households within the city (Cooke 2014; Shange 2018). The subject area is strategically located to absorb and benefit from the surrounding high density urban development expansion area. Housing projects often focus on quantity at the expense of quality as an attempt to address the current housing backlog, which compromises the developments' sustainability and directly impacts on the satisfaction levels of residents. Adhering to the principles of sustainable development is necessary in ensuring that residential satisfaction levels are met, thus prompting the development of sustainable cities and communities (UN's 11th Sustainable Development Goal). The true beauty of the Cornubia development is the strategic combination of various concepts and strategies – these include greenfield projects, new towns, informal settlement eradication – to create a "city within a city"; thus, eliminating the issue of commuting costs and creating opportunities within the development. All three spheres of government have some involvement in the implementation and management of the Cornubia Integrated Human Settlement (Mzolo 2016). The involvement of the three spheres of government ensures that the project aligns to the strategic goals of the constitutional obligations of government and all other strategic goals stipulated across the spheres (Mzolo 2016).

With regard to ownership, Tongaat Hulett has been the majority owner of this favourable and developable land. Approximately 517 hectares of that land were obtained by the eThekwini Municipality, with the intention to make provision for low income and affordable housing solutions for its citizens. Tongaat Hulett still owns 717 hectares of developable land which is intended for the provision of business, industry, medium density residential, and other essential mixed uses. Approximately 69 hectares of land has been allocated for the development of an office park, on land that is owned by the South African Sugar Association (SASA). A portion of Blackburn has now fallen under Cornubia, with several erven owned by Tongaat Hulett and the remaining ones owned privately. The eThekwini Municipality intends to attain approximately 28 hectares of land from Blackburn for the sole purpose of future residential development. This mass joint venture was formulated while adhering to the development principles of promoting a walkable city, social clusters, efficient use of green/open spaces, economic opportunities through provision of high-density mixed-use development, and promoting the integration of the surrounding area.

Given its strategic location, the Cornubia development channels into key economic and activity nodes, namely boosting the Umhlanga precinct, ultimately connecting relocated residents to major opportunities and a massive growth centre or growth poles (Lukhele 2014). The Integrated Rapid Public Transport Network (IRPTN) incorporating the Bus Rapid Transport (BRT) enhances the incorporation of the Cornubia development into the surrounding area through the provision of affordable and efficient transportation (Mvuyana 2019). The Integrated Development Plan (IDP) has identified the subject area and the surrounding areas as a key economic investment node, thus ensuring the enhancement of economic development and opportunities. The Cornubia development and concomitant investment will not only create opportunities for the relocated residents, but also for the residents of surrounding communities, namely Phoenix, Verulam, and Waterloo. The objectives stipulated in the Breaking New Ground policy have been adhered to as the development makes provision for a benchmark for mixed income groups and mixed use development (Mvuyana 2019).

The Cornubia project intends to provide a combination of fully subsidised housing, low-income housing, and rental housing. It also intends to make provision for the gap market and affordable housing for the private market (Lukhele 2014; Mvuyana 2019). Overall, the development looks at delivering several mixed use typologies, namely, three- to four-storey walk-ups, duplexes, multi-storey apartments, and terraced houses (Mzolo 2016). The project is rather unique as it plans to cater to different income groups. Mvuyana (2019) outlines the following groups:

- People earning < R3500, full government subsided housing.
- People earning R3500 – R10 000, characterised as the gap market group.
- People earning > R10 000, characterised as free market/affordable housing group.

The initial development proposal planned for the provision of 50 000 dwelling units, of which approximately 20 000 would be subsided (Sutherland, Sim and Scott 2015; Mvuyana 2019). The overall development will be carried out in several phases due to the magnitude of the project (Figure 6). The first phase, known as the pilot phase or Phase 1A, was completed and occupied by January 2014. A total of 482 dwelling units were built and allocated to 151 beneficiaries (Sutherland, Sim and Scott 2015; Ruiz 2017).

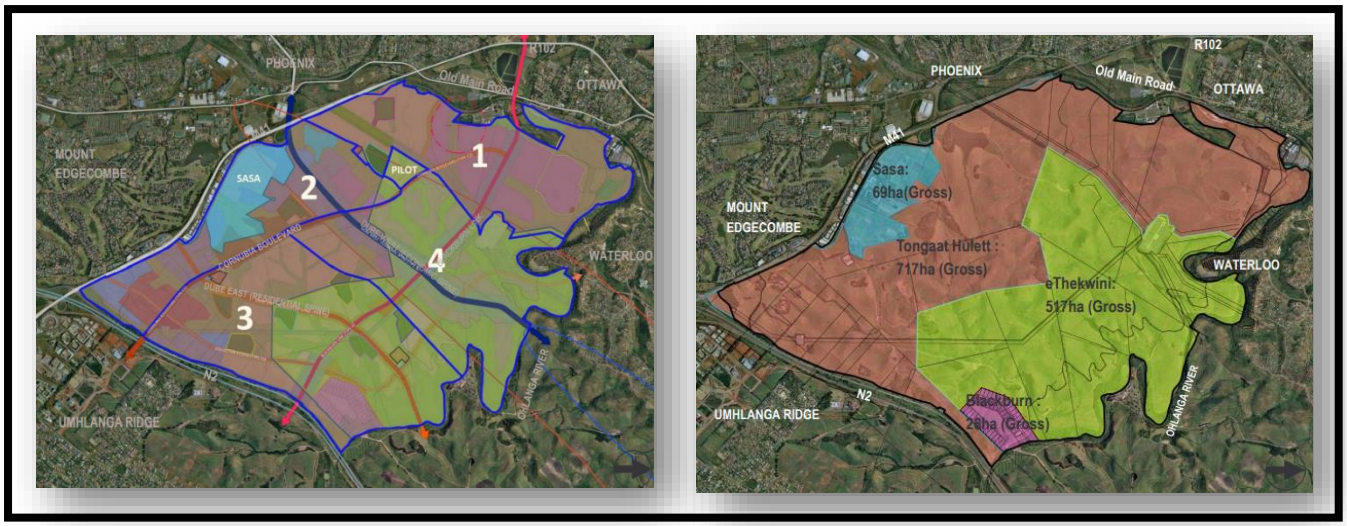


Figure 6: The Cornubia Housing Development phases

3.2.2. Phase 1A (the pilot phase)

This research study has chosen Phase 1A (the pilot phase) as the case study. The phase introduced 482 dwelling units; the phase was proposed and approved via a Less Formal Township Establishment Act 113 of 1991 (LEFTEA) process. This phase, as shown in Figure 7, tactically directs development around existing economic opportunities with access to essential social facilities.

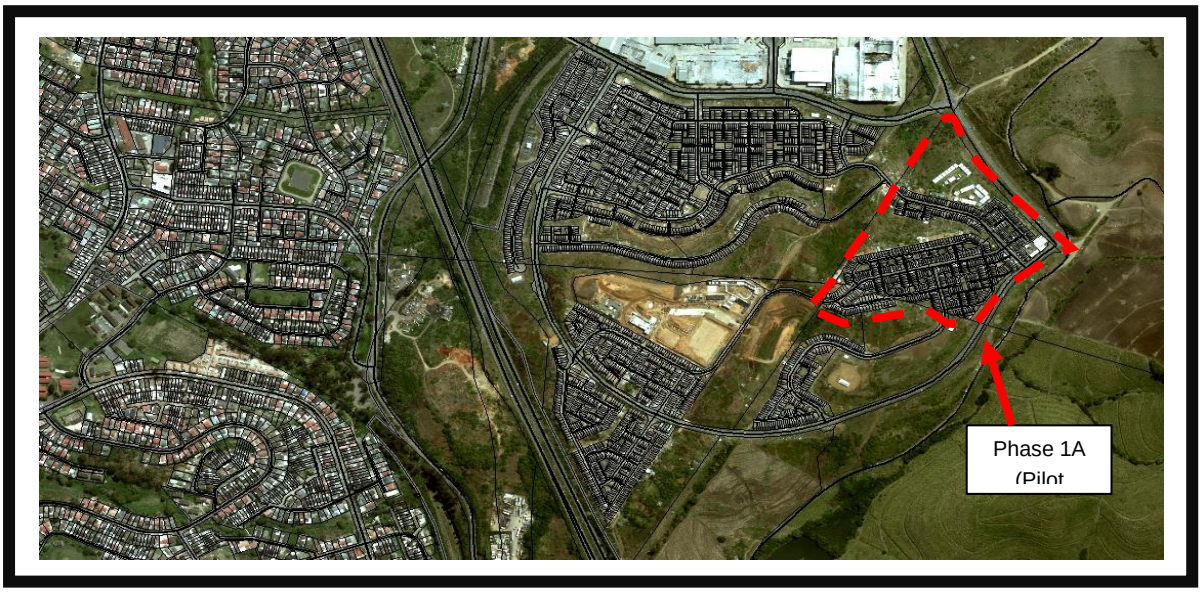


Figure 7: The Cornubia Development - Phase 1A

(Source: Google Maps 2022b)

The pilot phase produced an array of double storey attached dwelling units, which each measured approximately 50m^2. The proposed layout made use of a courtyard design, where bundles of dwelling units were arranged around a common piece of open land to be utilised as a public open space. Figure 8 below shows the design concept of Phase 1A.

Figure 8: The Cornubia Housing Development Phase 1A – Design

(Source: Iyer Urban Design Studio 2011; South Africa, Department of Human Settlements 2014)

Once the construction of the pilot phase was complete, these dwelling units were allocated and occupied by residents/beneficiaries of various informal settlements: these included Blackburn, Stonebridge, and Ridgeview (Ndlovu 2013; Msibi 2014).

In terms of the housing allocation policy, priority was given to emergency relocation of residents with health and safety concerns; those residing in transit camps; those with special needs; minority groups; partial and strategic relocation of people from approved upgrading programmes; and those obstructing potential future developments (Mzolo 2016). Each beneficiary (now an official resident) who was allocated a house also received freehold tenure. Table 1 below shows a summary of the case study.

Table 1: Summary of the case study

Summary of Case Study	
Development Name:	The Cornubia Integrated Human Settlements Project
Case Study Focus:	The Cornubia Housing Development – Phase 1A (the pilot phase)
Number of Dwelling Units:	482 dwelling units
Dwelling Unit Size:	50m^2
Typology:	Double storey attached
Tenure:	Freehold

3.3. Conclusion

Chapter three exploded international literature related to the research topic. The international literature review examined the trends identified in the developed and developing world. In the context of the developed world, the trends identified in Australia have contributed towards this study. Whereas, in the developing world, trends identified in India have contributed towards the concept of this study. This chapter provided a detailed outline of the case study i.e., the Cornubia Integrated Human Settlement Project. The overall study area has been examined and explained briefly, focusing on the background and locality. The chapter provides a detailed breakdown of the pilot phase i.e., phase 1A, which is the study area for this study. The next chapter outlines the research methodology used for the study.

CHAPTER 4: RESEARCH METHODOLOGY

The research methodology chapter provides a comprehensive breakdown of the process according to which the study will be implemented, to ensure that the main objectives of the study are met. The research methodology is a set of guiding principles and techniques utilised for the collection and analysis of data. Highlighting the research methodology assists in validating the findings and recommendations of the study. The chapter goes further to break down the research approach/design, data collection process, data analysis process, validity and reliability, and ethical considerations of the research study

4.1. Introduction

As explained above, this study aims to evaluate the level of residential satisfaction related to the relocation of residents of informal settlements to newly developed greenfield projects. This study entails a case study research methodology. The case study uses an in-depth analysis of a particular phenomenon in a given setting and can be represented in the form of an event, entity, or individual (Noor 2008). Various misinterpretations have been made when dealing with case studies, namely that theoretical research is more reliable and useful compared to that of practical research, which has been proven not to be the case (Flyvbjerg 2006). Furthermore, a case study approach allows for a conclusion which is formulated by the comparison between real-life activities and theoretical research (Leedy and Ormrod 2014).

The Cornubia Integrated Human Settlements Project provides the material for the primary case study; it is a newly developed mega-catalytic project located in the northern region of the eThekwini Municipality. The use of a case study allows the researcher to conduct an in-depth analysis of the area. As explained by Patton (1987) and Noor (2008), the idea of the approach is not to study an entire organisation; rather, it aims to focus on the aspect of residential satisfaction achieved by a selected population within the study area. The development will expose relocated residents to a new and improved environment, with various economic opportunities and services which have been personalised to the nature of the area and incorporated within the project. The urban periphery consists of prime land which is highly suitable to sustain development. However, past studies have shown that the development of greenfield projects on the periphery of urban centres tend to be unsuccessful,

as noted by Siqhwala (2002), as many relocated residents are unable to adjust to a new environment. Many have issues with distance from working opportunities and services, as greenfield projects tend to accommodate housing only, turning a blind eye to other basic needs. These factors have brought about the issue of abandonment and illegal sales of subsided housing. Therefore, to utilise this land strategically, the eThekwini Municipality aimed to incorporate various mixed uses (which included economic opportunities and various services) into greenfield housing projects, which would be personalised to benefit and accommodate the needs of this population in their new environment – which brought about the development of the Cornubia Integrated Human Settlement Project.

The plan sounds perfect on paper; however, will it hold once the development is complete? This is the big question that most developers and investors have been asking since the introduction of this mega-project. There have already been reports of abandonment and illegal sales of subsided units, which is what has intrigued me to investigate this settlement further. By carrying out this study, this reasons for abandonment will become clearer, which will assist future development projects to avoid such issues.

The study consists of both a qualitative and a quantitative aspect, which has assisted in pinpointing the issues which have led to dissatisfaction and abandonment within the settlement. As explained by Creswell and Clark (2017), the use of a triangulation mixed methods design allows the collection of both qualitative and quantitative data simultaneously. This study has used the mixed methods approach, which incorporates characteristics of both the qualitative and the quantitative approach. This mixed methods study addresses the level of residential satisfaction of residents who have been relocated from informal settlements to greenfield projects. Work done by Naoum (2012) suggests that a qualitative approach is most suitable when evaluating levels of satisfaction, and such an approach has been carried out by means of holding in-depth interviews and carrying out intense field observations – these activities will give the research a backdrop to further build on. However, Naoum (2012) adds that incorporating a quantitative component would further benefit the study. The study also looks at the use of a quantitative questionnaire which will be distributed to a selected population within the Cornubia development. This adds a quantitative component to the study, thus producing a triangulation design type. According to Creswell and Clark (2017), this design type involves the

concurrent collection of qualitative and quantitative data, to allow the researcher to directly compare and contrast both forms of data. This study consists of a single data collection phase, during which time both qualitative and quantitative data were collected from the Cornubia development, giving equal weight to each approach. The two types of data were collected using the respective measuring instruments, and have thereafter been merged and analysed (Wisker 2007).

4.2. Data collection

4.2.1. Primary data

a. Structured questionnaires

The residents of the Cornubia Integrated Human Settlement Project who were relocated from various informal settlements were chosen as the population for the collection of primary data, in the form of quantitative and qualitative data. The development is currently still in progress, with the completion of phase 1A (pilot phase) which is the key focus for this research study. Phase 1A of the development consists of approximately 482 units and an estimated population size of 1928 people, at a standard of 4 persons per unit (Iyer Urban Design Studio 2014). The sample size has been chosen as per the specifications drawn up by Leedy and Ormrod (2014), which is shown in Figure 9 below.

Type A: N ≤ 100, the whole population size will be sampled
Type B: N = +-500, 50% of the population size will be sampled
Type C: N = +-1500, 20% of the population size will be sampled
Type D: N ≥ 5000, the population size is irrelevant and the sample size of 400 will be adequate

Figure 9: Sample size categories

(Source: Leedy and Ormrod 2014)

Phase 1A consists of 482 units, therefore, it has been classified as type B. This means that only 50% of the total units will be required, which gives us a sample size of 241 units. Table 2 below provides more details on the dwelling units, along with a breakdown of the sample size selection process.

Table 2: Phase 1A Dwelling unit breakdown

Phase 1A (the pilot phase)
Medium density residential 1 80du/ha 50m² Attached 1-2 Story Fully subsidized Total: 482 units
Sample size
= 482 Units x 50% **= 241 Units**
Total sample size = 241 units

b. Semi-structured interviews

Semi-structured interviews were conducted with relevant key role players and stakeholders within the study area of Cornubia, who were purposively selected. An interview is one of the most effective and personal forms of collecting data, as noted by Leedy and Ormrod (2014), and this has been proven to be a highly beneficial and time-saving method of data collection. The sample of respondents was purposively chosen, i.e., this is a non-probability study. The sample includes professionals with proficiency in planning and housing. Table 3 shows the key role players involved in this portion of the research study.

Table 3: Semi-structured interview key role players

Key role players	Role/contribution towards case study
• **Ward councillor**	Community leader
• **Iger Design**	Project consultant
• **Tongaat Hulett Development**	Project developer
• **eThekwini Municipality officials**	Professionals and planners from these departments have a wide range of knowledge development

c. Field observations

The study made use of qualitative field observations, as noted by Leedy and Ormrod (2014), with the greatest advantage to this method being its flexibility.

The data collected may be recorded in various forms, such as written, video recording, or voice recording. Such methods of data collection allow for a clearer understanding of the current situation and living conditions of the residents. However, this method has a few downfalls which could impact on the results of the research study. The presence of the researcher/s in the field may have an impact on the way that residents respond and behave. It may also be difficult to know what to look for when in the field. Analysing the recorded data may be difficult, as it may be difficult to understand written notes from the field, or it may be difficult to hear and understand videos that have been recorded. Informal interviews were nevertheless conducted with the residents of the Cornubia Housing Development, and also with key role players who could provide insight to the research study topic.

Procedures and measurement instruments

As learned from Leedy and Ormrod (2014), measurement creates limitations and boundaries for the data of a phenomenon, to allow for comparison and interpretation. In the process of evaluating levels of satisfaction, the study made use of various instruments which allowed for the creation of a systematic component to the primary data collection stage.

Firstly, the study made use of structured questionnaires, as they provide data which is easy to understand and code. Structured questionnaires also reduce the amount of time needed by respondents to complete the questionnaires, which should make them more willing to participate in the study. A total of 241 structured questionnaires were used in this process. Questionnaires comprised the following sections:

Section A: Interviewees'/Respondents' personal details
Section B: Household characteristics
Section C: Young adults
Section D: Factors influencing young adults' household formation behaviour
Section E: Household/Dwelling unit features
Section F: Dwelling unit support facilities
Section G: Public and neighbourhood facilities
Section H: Social environment
Section I: Residential satisfaction during Covid-19 lockdown in South Africa

Each dwelling unit received only one questionnaire to be completed. Upon arrival in the study area, the researcher/data collector informed residents

verbally about the study and the process was explained in detail. Additionally, those who were willing to participate were given a letter of informed consent providing all the relevant information about the study and a form for voluntary participation. Once consent to participate was received, the researcher/data collector went through the questionnaire verbally with each participant. Due to the Covid-19 pandemic, data collectors received verbal responses from participants and recorded these on in the respective questionnaires. While this was not the most ideal process as it was very time consuming, this step was necessary to minimise physical contact and to prevent the spread of Covid-19. Each questionnaire was numbered and labelled with the respective unit number to limit any confusion of repetition. If consent to participate was not received, the researcher/data collector moved on to the next dwelling unit.

Secondly, qualitative information was collected by means of semi-structured interviews. This instrument allows the identification of previously unknown trends and assists in identifying the reason for these trends; which makes this instrument most suitable for the study as it aimed to identify the reason for the trend of housing abandonment within the Cornubia development. Due to the Covid-19 pandemic, participants were given the option to make use of any of a variety of electronic methods, e.g., telephone, emails, skype and any other method that limited physical contact. Semi-structured interviews comprised, but were not limited to, the following questions:

1. The Cornubia development is a bold multi-billion-rand project, which is vigorously pursuing the goal of becoming the most liveable city in Africa by 2030. What are your views on this venture?
2. The eThekwini Municipality plans to eradicate approximately 40 years of housing backlog, through a combination of expropriating land and acquiring it through amicable agreements (Nxumalo 2019). What are your views on this goal and method?
3. With regard to economic opportunities, the project aims to create approximately 15 000 construction job opportunities and 48 000 permanent job opportunities. What is your opinion on this statement?
4. This mass project aims to achieve an integrated human settlement and to increase district integration. What impact will the development have on the surrounding area, in terms of property value, environmental impact, pollution, and traffic constraints?

5. The Cornubia development introduces low-income housing in an area of medium to high income housing. In your opinion, do you think relocated dwellers will be able to adapt to this change in environment?
6. There have been several news reports which speak of illegal activities relating to the allocation and “sale” of subsidised housing. What is your opinion and recommendation regarding this issue?
7. Angry and concerned residents of the settlement are demanding that a pedestrian bridge be installed over a busy highway after two children were run over while making their way to school (Govender 2020). With regard to this, what is your opinion on the delivery of infrastructure in the area?
8. One the key objectives of the Cornubia development is to ensure sustainability by establishing a framework, delivery and management system that embraces all aspects of human settlements. In your opinion, has this objective been achieved?
9. In your opinion, what impact has the development had on the economic and managerial sector? (Employment opportunities, Transportation, Educational facilities?)
10. In the context of the Covid-19 pandemic in South Africa, what impact do you think this will have on the Cornubia development?
11. In your opinion, do you believe that the Cornubia Integrated Settlements Project has been a success?

Lastly, data has been collected by means of field observations, as this enhances the reliability of the situation at hand and provides a backdrop to the study. Field observations have been recorded simultaneously with the distribution of structured questionnaires. Data was collected in the form of pictures, videos, and written notes.

4.2.2. Secondary data

Secondary data was obtained from local and international literature, which highlights residential satisfaction and the impact that relocation has had in other places. As noted by Leedy and Ormrod (2014), secondary data may be referred to as second hand information and is obtained by means of secondary sources. This method allows the researcher to learn from previous studies and provides a guideline for researchers to formulate a new study. With the technological

advancements of the 21st century, secondary information has become more accessible and informative. However, many researchers, such as Hox and Boeije (2005), advise caution when using sources that cannot be verified. The Internet may be vast and its sources convenient; however, it can be rather disorganised. It is also rather time consuming to find data which is directly related to the topic at hand. In the case of this study, there were very few sources available that provided information on residential satisfaction of relocated residents to greenfield projects.

This study made use of various secondary sources on residential satisfaction and relocation programmes that were available. These were analysed to assist with, and to increase the validity of, the results obtained. The researcher consulted previously published papers, academic theses and books related to the concept of residential satisfaction, focusing on the informal settlement sector. Thereafter, reference was made to the existing design and subdivision reports for the Cornubia Integrated Human Settlement Project. Various journals, government documents, and articles which included literature from local and international events similar to the study were also included.

4.3. Data analysis

The data collected from the residents of the Cornubia settlements by means of the structured questionnaires were extracted and compiled for the analysis phase. The study made use of the Statistical Package for the Social Sciences (SPSS). This software is, as noted by Knight and Ruddock (2009), the most commonly utilised statistical analysis software and is tremendously useful. SPSS allows researchers to carry out a variety of statistical procedures such as frequencies; and provides various analysis chart options. The data was compiled, consolidated, and represented in tables and graphs for further investigation. The qualitative data which was collected from the field observations and the data collected from the relevant key role players and stakeholders within the study area of Cornubia, was compiled and analysed using NVivo, which offers qualitative (i.e., coding, content analysis, and thematic) analysis. The software permits researchers to manage data easily, manage design, query data, visualise data, and report from the data (Bazeley and Jackson 2013). NVivo was the most suitable option for this study as it is

efficient, saves time and energy for data classification, and creates relationships among generated themes (Dollah, Abduh and Rosmaladewi 2017).

4.4. Data storage and backup

The research data gathered was extracted, backed-up, and stored as a precautionary measure to ensure the protection of participants rights in terms of data storage. With regard to researchers, data storage ensures protection in terms of legal and ethical requirements, and protection from accusations of misconduct. With regard to data storage and maintenance, primary data has been stored within the department and it will remain there for at least five years after publication, which will ensure safety and integrity of the data set. Data sets have also been backed-up electronically on an external device. Confidentiality of data sets has been maintained at every stage of the study.

4.5. Validity and reliability

The attributes of validity and reliability are used to evaluate the quality of a research study, by determining the level of accuracy of the chosen research design type, procedures, and measurement instruments. The concept of validity focuses on the accuracy of the results obtained from the study compared to what is found on the ground, whereas reliability focuses on the consistency and replicability of the study, to determine whether the findings may be applied in similar studies. In the process of evaluating the level of residential satisfaction, the research study makes use of both qualitative and quantitative methods, thus producing a mixed methods study. According to Dow (2012), this concept is referred to as methodological pluralism, which refers to the use of multiple methods within a single study in order to enhance the validity and reliability of the overall study. The use of structured questionnaires, semi-structured interviews, and field observations contributes to the enhancement of the validity and reliability, thus allowing the results obtained to be applied to future studies.

4.6. Ethical consideration

When performing a mixed methods study, ethical considerations are vital to ensure that no research process infringes on human rights, or causes any kind of harm and distress, and that no confidentiality clauses are broken (Leedy and

Ormrod 2014). Since the study has utilised the residents of Cornubia as part of the sampling process, extra care was taken in regard to ethical considerations. The study has followed the stipulated ethical guidelines. Ethical considerations pertaining to human research include protection from harm, voluntary consent, and the right to privacy. Respondents were given a full breakdown of the research procedure and their role in the study was thoroughly explained. Participants were made aware that their participation in this study was entirely voluntary and that they could withdraw at any given time should they not feel comfortable. Approval to conduct the research was obtained from the relevant departments, and a gatekeeper's letter was issued for the study area (Cornubia).

4.7. Conclusion

Chapter four provided a breakdown of the research methodology used for this study. A case study research methodology was used, which allowed for an in-depth analysis of the area. A triangulation mixed methods approached was used as it allowed the collection of both qualitative and quantitative data. With regards to data collection, primary and secondary data was collected for analysis. Primary data was collected in the form of structure questionnaires, semi-structured interviews, and field observations. Secondary data was obtained from published journals articles and research papers. The chapter also provided a detailed breakdown of the data collection process, data analysis process, validity and reliability, and ethical considerations of the research study. The next chapter includes a detailed analysis of the data obtained from this study.

CHAPTER 5: ANALYSIS OF FINDINGS AND RESULTS

This chapter looks at analysing the primary data collected from this study, in the form of quantitative and qualitative data. The results obtained from the questionnaires, interviews, and the field observations have been recorded as the primary data for this study. The relevant data obtained from the secondary sources have also been utilised to make a conclusion on the level of residential satisfaction of relocating residents of informal settlements to the Cornubia Integrated Human Settlements Project. This chapter strategically analyses the results obtained in order to determine whether communities are satisfied or not. The chapter will also highlight the key findings of the study. Additionally, this section aims to establish the success rate of the interventions and housing policies, as the desired outcomes were covered in the earlier chapters of this study. A recommendation will thereafter be made on the basis of this study.

As this research study makes use of a mixed methods approach, the quantitative and qualitative data collected were analysed simultaneously. The data collected from the residents of the Cornubia settlements in the form of structured questionnaires, were extracted and compiled for the analysis phase. There are various software packages that allow for the analysis of quantitative data; however, this study made use of the Statistical Package for the Social Sciences (SPSS), which has been highly recommended by many researchers. The qualitative data which was collected from the field observations and from the relevant key role players and stakeholders within the study area of Cornubia, will be compiled, analysed and used to supplement the quantitative findings. A structured questionnaire was conducted with the identified sample of the study, of which there were 127 respondents. The results obtained will be analysed below. Each component has been measured against the level of "residential satisfaction achieved".

5.1. Data analysis

5.1.1. Demographic characteristics of respondents

Before unpacking and analysing the core results, it is vital to obtain a better understanding of the respondents. This will help later in determining the conclusions of the study. This section looks at the key demographic characteristics of respondents, as this will increase the validity of the study and

aid in understanding and interpreting the results obtained. The following characteristics were flagged as key influencers.

The gender of respondents is shown in Figure 10. This figure shows that a total of 127 respondents participated by responding to the structured questionnaires that were handed out. Of this total, 51 (40.2%) were females, and 76 (59.8%) were males. This suggests that the majority of relocated dwellers in the Cornubia Housing Development are female. Additionally, it shows that the programme did not discriminate against either gender.

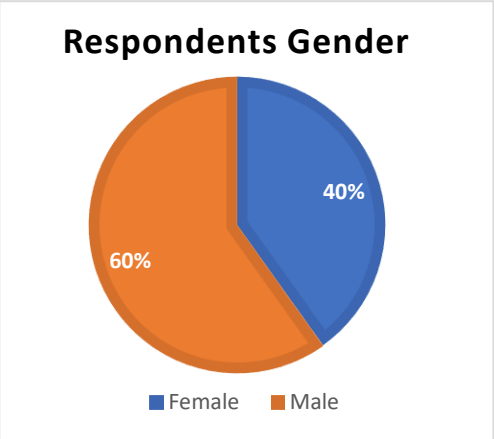


Figure 10: Respondents' gender

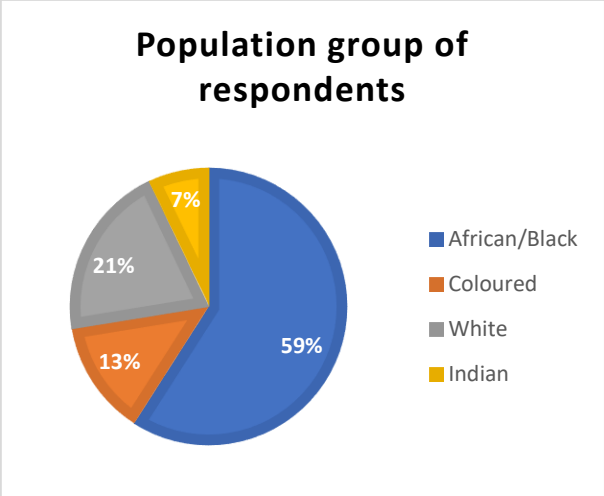


Figure 11: Population group of respondents

According to the results shown in Figure 11, the Cornubia development has a diverse population in terms of race group. From the total number of respondents, 75 (59.1%) were African/Black, 17 (13.4%) were Coloured, 26 (20.5%) were White, and 9 (7.1%) were Indian. This shows that the majority of respondents classify as African/Black. Additionally, it shows that the programme did not discriminate against race groups.

Respondents were asked to identify their highest qualification obtained, and the results are shown in Figure 12. From the total number of respondents, 64 (50%) had a highest qualification that was below grade 12, 49 (39%) had obtained a grade 12, 8 (6%) had obtained a diploma, and 6 (5%) had obtained a degree. While the results do show a considerable number of highly qualified individuals,

the majority of the respondents were unable to obtain any qualification above grade 12. Upon further discussion, many of these respondents elaborated that due to their financial situations, many of them had been forced to leave school. It was also discovered that several students had been forced to leave school after the relocation – as residents had expressed their concerns and difficulties in regard to having access and affordable transportation to the school within close proximity to the Cornubia area.

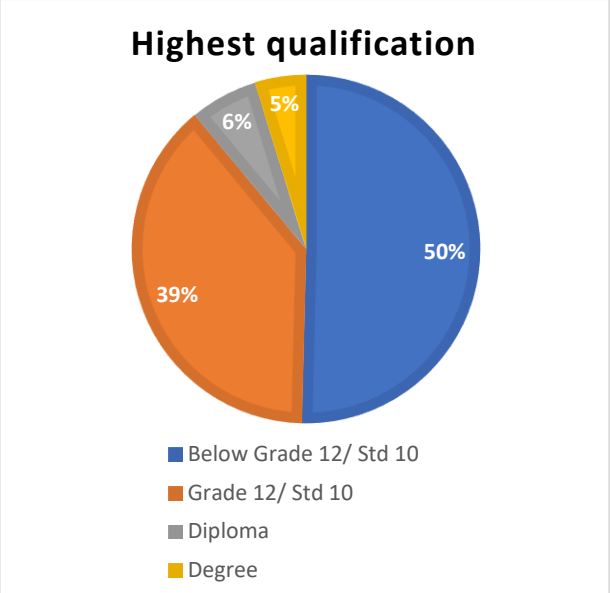


Figure 12: Highest qualification

5.1.2. Household characteristics

The intention of the Cornubia Housing Project was to relocate informal dwellers to a greenfield development in order to provide these dwellers with a safe and secure home with the basic supporting needs and services. As mentioned previously, this research study was initiated to investigate the claims that beneficiaries were not happy or satisfied by this relocation. Therefore, it is important to gain some insight into their previous places of residence and the original environment of these beneficiaries, in order to evaluate this matter further.

With regard to their previous places of residence, 13 (11%) had previously resided in Newlands East, 5 (4%) had previously resided in Sydenham, 12 (10%) in Reservoir Hills, 12 (10%) in Clare Estate, 9 (7%) in KwaMashu, 14 (11%) in Cato Crest, 21 (17%) in Isipingo, 4 (3%) in Inanda, 18 (14%) in Umlazi, 7 (6%) in Springfield, 9 (7%) in Phoenix, and 3 (2%) had previously resided in Greytown. The results are significant to the study as they show the estimated distance by which residents were relocated. According to the results displayed in Figure 13, the majority of the respondents were relocated from Isipingo and Umlazi, each of which is approximately 45km away from Cornubia. This implies that there was a significant change with regard to their surrounding

environment, facilities, access, job opportunities and access to transportation. While, the Cornubia development aims to provide such facilities, it is only human nature to have difficulties adjusting to change.

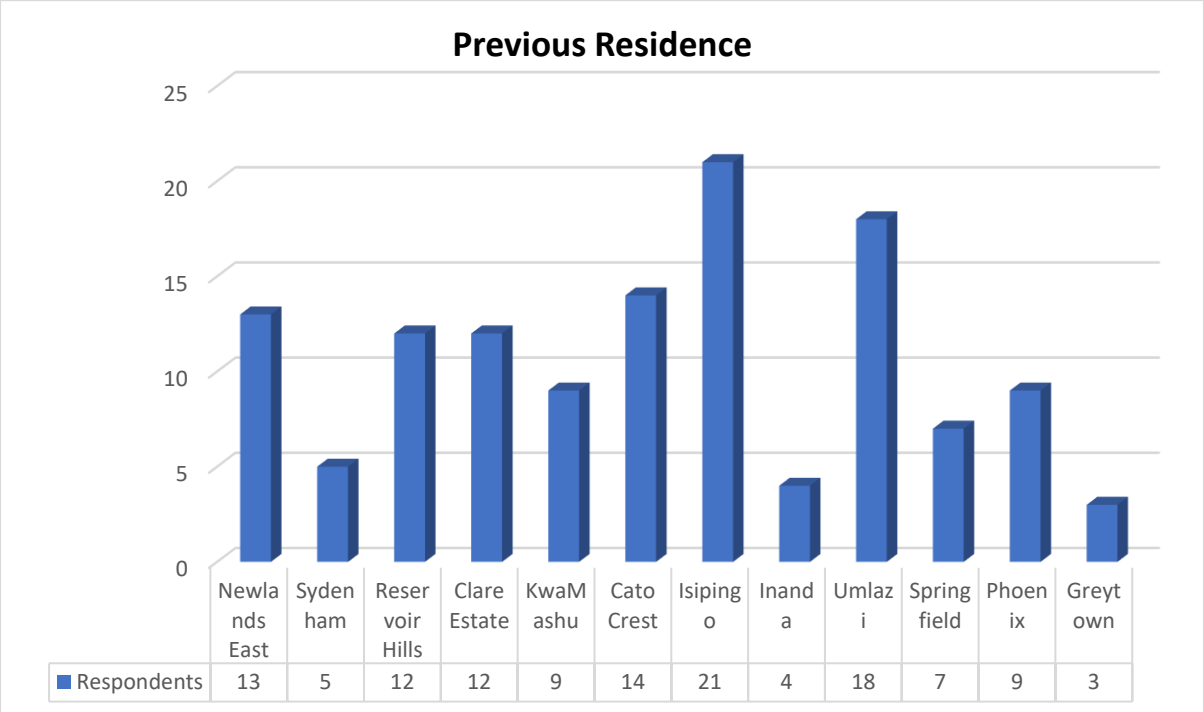


Figure 13: Previous residence

Respondents were asked to best describe their household, in order for the study to identify and categorise each household.

According to the structured questionnaire, a one-person household refers to a household where the entire house is run by a single person without the assistance of any other member. A nuclear household looks at the typical common family dynamic of two parents and their children. An extended household includes additional family members or extended family members, such as parents, uncles, aunts and cousins. A composite household is one that accommodates any combination of isolated persons and families.

In relation to this study, respondents were asked to pick the one that best described their household. Of these, 4 (3%) households identified as a one-person household, 99 (78%) households identified as a nuclear household, 23 (18%) households identified as an extended household, and 1 (3%) household identified as a composite household (Figure 14).

To ensure the reliability of the responses, respondents were asked to indicate the number of years that they had resided in their current household. In response to this, 54 (42%) indicated less than a year, 71 (56%) indicated between 2 and 3 years, and 2 (2%) indicated more than 4 years (Figure 15).

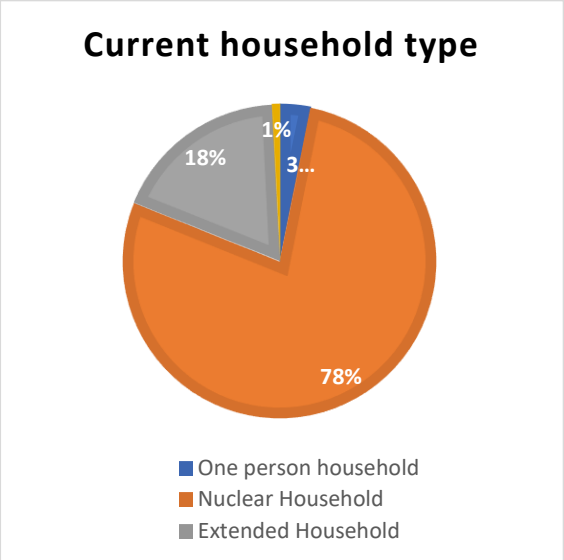


Figure 14: Current household type

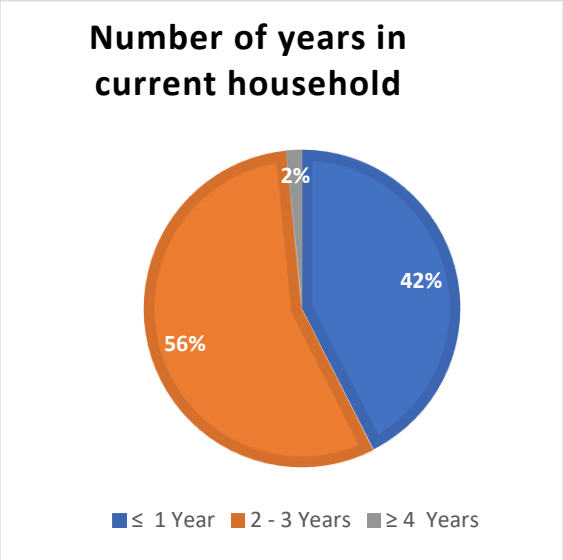


Figure 15: Number of years in current household

5.1.2.1. Household head: gender/race/income

In terms of the results obtained, 67 (53%) household heads were male, and 60 (47%) were female. While majority of the households were headed by males, a large number of households were headed by females (Figure 16).

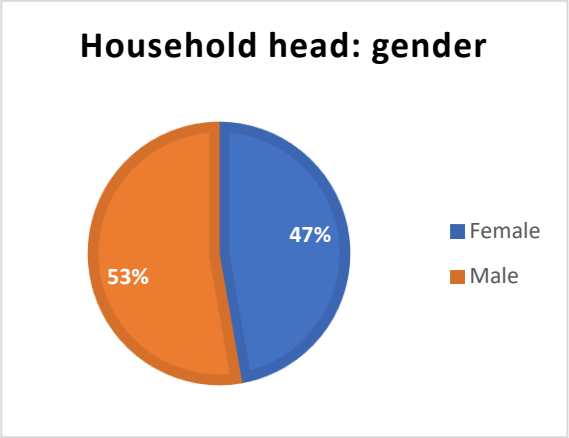
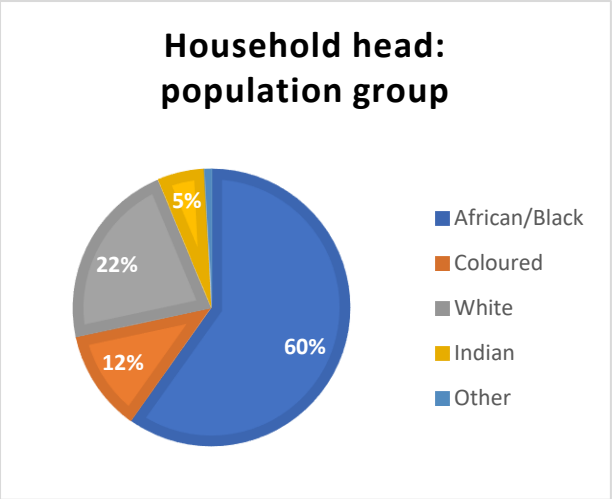


Figure 16: Household head gender



With regard to the population group, 76 (60%) household heads identified as African/Black, 15 (12%) household heads identified as Coloured, 28 (22%) identified as White, 7 (5%) identified as Indian, and 1 (1%) household head identified as Other. This shows a mixture of population groups, with the majority being African/Black (Figure 17).

Figure 17: Household head: population group

Regarding the age group of these household heads, 1 household head was below 10 years, 3 household heads were 11 – 15 years old, 15 household heads were 16 – 20 years old, 12 were 21 – 25 years old, 31 were 26 – 30 years old, 7 were 31 – 35 years old, 25 were 46 – 50 years old, 17 were 51 – 55 years old, 11 were 56 – 60 years old, and 5 household heads were over the age of 61 years old.

As shown in Figure 18, the majority of household heads fell into the age bracket of 26 – 30 years old and this number started to decrease greatly after the age

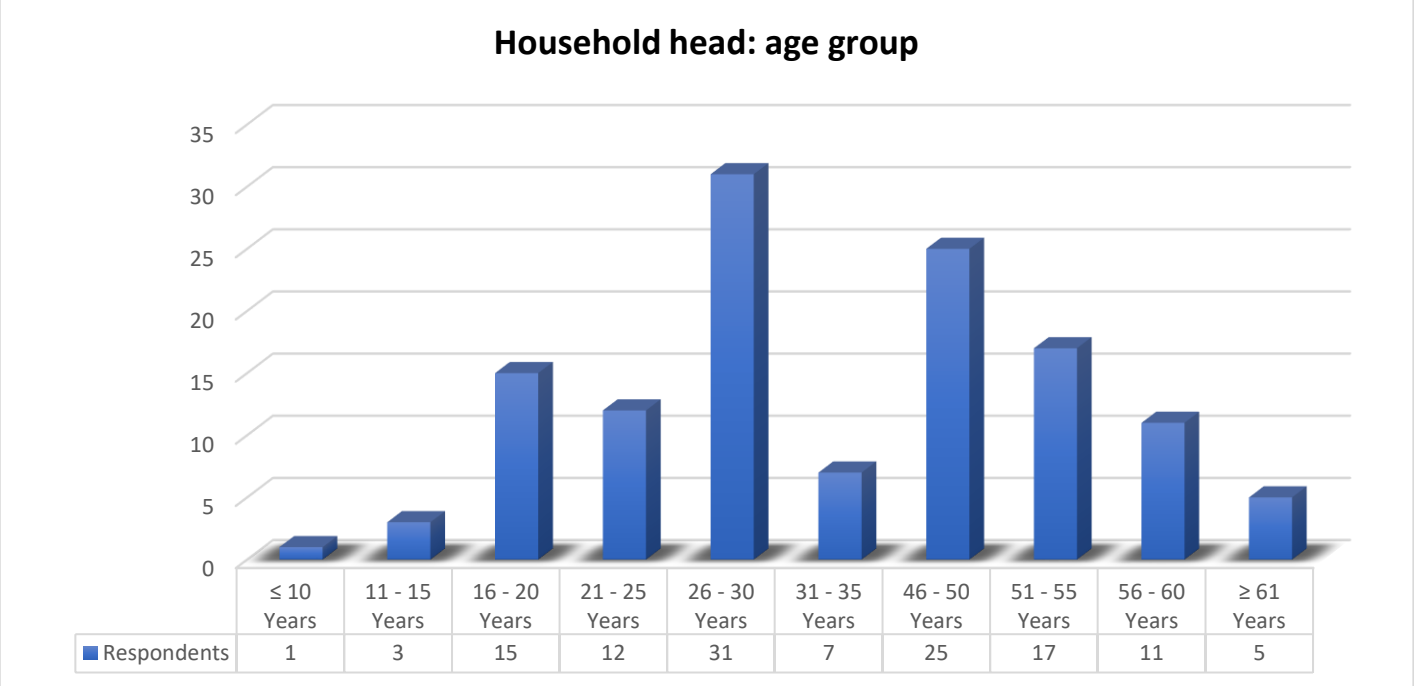


Figure 18: Household head: age group

of 56 years. Also, it should be noted that the majority of the household heads/residents identified as African/Black. These key factors are related to the stages of the African/Black lifestyle, in terms of which the elderly people retire to the villages i.e., the traditional areas.

Household heads were questioned with regard to their source of income. Of these, 33 (26%) received an income through formal employment, 47 (37%) through informal employment, 37 (29%) in the form of government/social grants, and 10 (8%) received an income through other avenues. The key point to note is that these household heads were still active and were a source of labour supply (Figure 19).

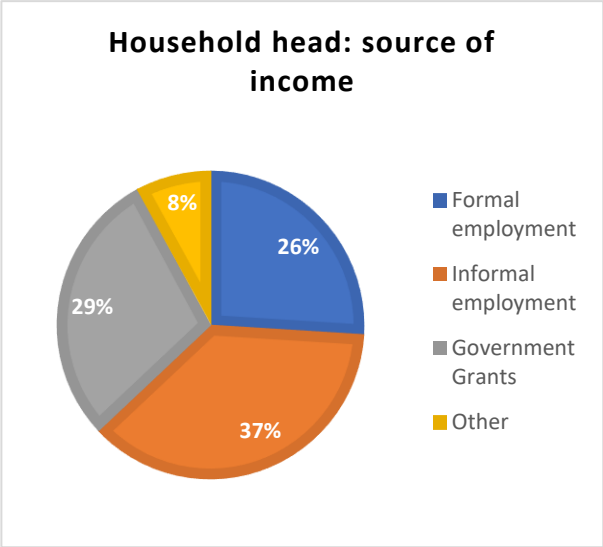


Figure 19: Household head: source of income

The follow-up question enquired as to the estimated monthly income received by household heads, upon which, 56 (44%) estimated less than R2000, 34 (27%) estimated between R2000 – R5999, 28 (22%) estimated between R6000 – R9999, 4 (3%) estimated between R10 000 – R13 999, 4 (3%) estimated between R14 000 – R17 999, and 1 (1%) estimated more than R18 000. It should be noted that the results obtained may not be absolutely reliable as respondents were asked to indicate an estimate (Figure 20).

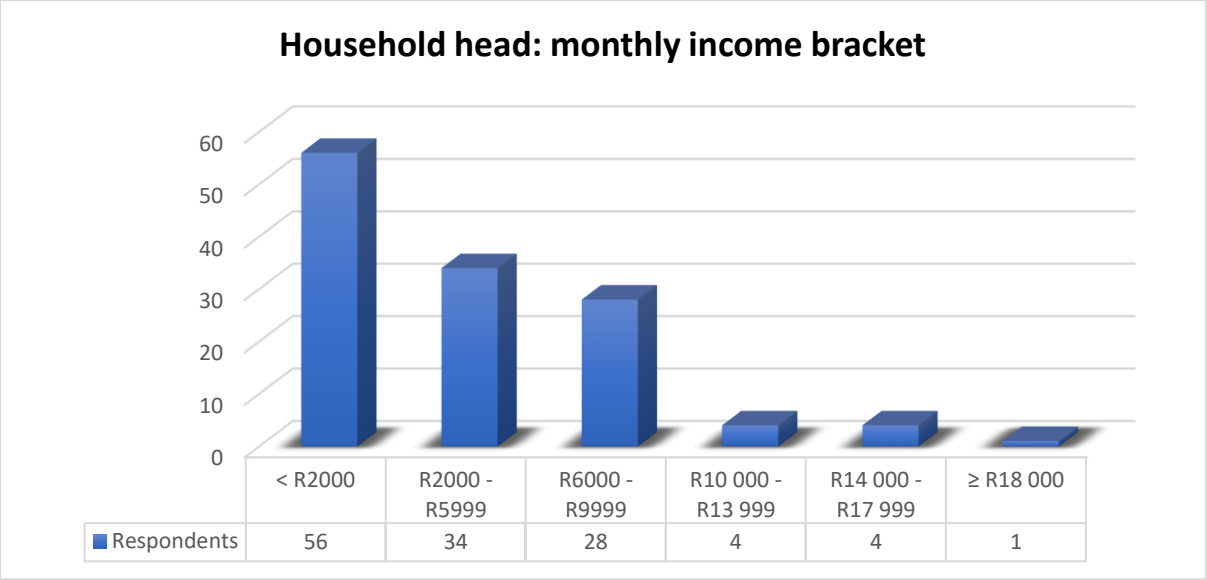


Figure 20: Household head: monthly income bracket

These statistics show that the majority of these residents do not have formal jobs or any form of job security, resulting in residents living from hand to mouth. Respondents elaborated that due to the travelling distance and transport cost from their current location to the CBD (which is where the majority of the job opportunities exist) many had been forced to turn to informal employment to make a living. The intention of the Cornubia Project was to provide housing for dwellers, along with employment opportunities and services. It was intended that the dwellers should find employment opportunities at newly developed industrial businesses, commercial offices, and retail outlets. However, the project has not met residents' expectations in this respect, leaving residents to survive on government/social grants and informal employment.

5.1.2.2. Age group of members in the study area

Each respondent was asked about the age groups of the members in their household (including themselves). The table below represents a detailed analysis of their response.

This information makes available an estimated summary of the age groups of people in the study area. As shown in Figure 21,10% were below the age of 5 years, 10% were from 6 – 10 years, 8% were from 11 – 15 years, 7% were from 16 – 20 years, 11% were from 21 – 25 years, 12% were from 26 – 30 years, 10% were from 31 – 35 years, 6% were from 36 – 40 years, 11% were from 41

– 45 years, 7% were from 46 – 50 years, 6% were from 51 – 55 years, 2% were 56 – 60 years, and there were no members over the age of 61 years.

The results imply that the majority of the residents in the study area were rather young, which is in line with the observations made on site.

Age group of members in the study area	
Age Category	***Frequency***
0 - 5	41
6 - 10	41
11 - 15	36
16 - 20	30
21 - 25	49
26 - 30	51
31 - 35	41
36 - 40	26
41 - 45	46
46 - 50	32
51 - 55	24
56 - 60	8
≥ 61	2
Total	**427**

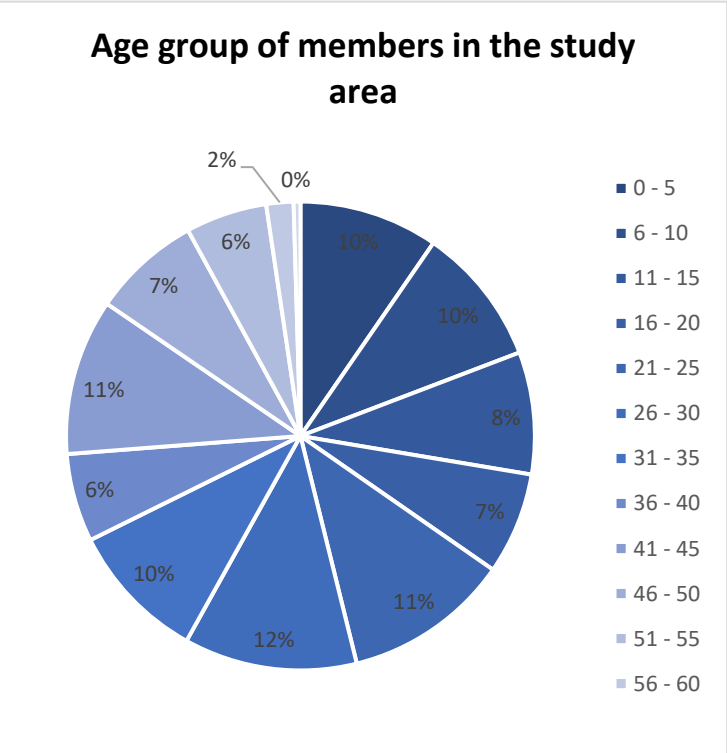


Figure 21: Age group of members in the study area

5.1.3. Young adults

Young adults are generally characterised as being between the ages of 18 and 26, which is the development stage of late adolescence as one goes through the change from child to adult (Stroud, Walker, Davis and Irwin 2015). Over the years, this population has been overlooked as a distinct population with unique needs. However, this group has now been highlighted across several fields of research as this is a time that creates a critical foundation with long-lasting implications for future career paths, overall health and general well-being (Stroud *et al.* 2015).

According Stroud *et al.* (2015), young adults now reside in a technologically highly advanced world with rather low social mobility and a relatively high level of economic inequality. According to Domènech and Salmeron (2019), the young adults of the 21st century are very different from their parents. Stroud *et al.* (2015) elaborate that the previous generation had a set and predictable pattern: graduate from school, proceed to a level of higher education or join the labour force, move out of their parental home, find a spouse, and ultimately begin a family. These key milestones paved the path and direction for young adults as they proceeded towards adulthood. The 21st century, however, is unpredictable and sometimes meaningfully challenging. Young adults have evolved to be unique and strive to make a change in the world – starting with their personal choices and preferences. While the previous generation treated marriage and starting a family with great importance, the new generation seems to be delaying key milestones. They have placed greater importance on their career and creating a life and name for themselves before settling down. Additionally, the new generation seems to be better equipped and more diverse, with different values.

While this new way of life has created openings for many young adults, it has also created obstacles for some. Stroud *et al.* (2015) mention that marginalised young adults are less likely to have a positive transformation to adulthood, due to constraints experienced as a result of their environment and their challenged upbringing. Stroud *et al.* (2015) note that some of these marginalised young adults ultimately fare well in adulthood.

According to Domènech and Salmeron (2019), cultural transformations and the economic environment are two key forces behind the identified changes. He states that the recurring factors that have stalled the choices made by this generation of young adults will lose intensity over the coming years. However, Domènech and Salmeron (2019) mention that the underlying forces, such as secularisation and economic transformations, will remain ever present and suggest that, broadly speaking, the behavioural changes we see among young people are here to stay.

The section on young adults is a key component in this study. Revington (2018) published a study in which he reviewed the role of young adults in the urban environment. He elaborates that the challenges that have resulted from changing demographics, expensive housing, and precarious labour options has led to the growing interest in the residential geographics of young adults.

Figure 22 shows that 22% of households do not have any childless unmarried adults, 60% have between 1 and 2 childless unmarried adults, and 18% have between 3 and 5 childless unmarried adults.

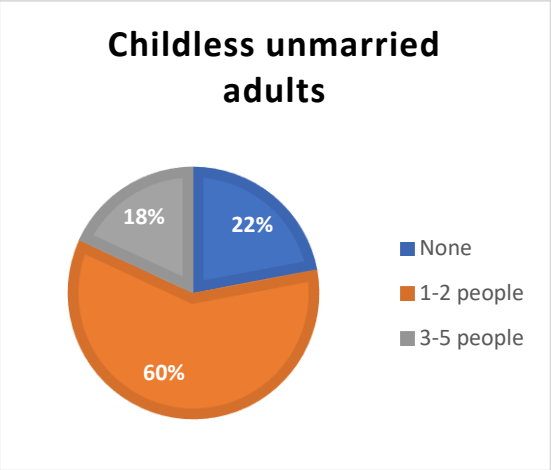


Figure 22: Childless unmarried adults

Figures 23, 24, 25 and 26 graphically represent the statistics on young adults within households in the community. The results suggest that approximately 60% of households have between 1 and 2 childless unmarried adults under their roof.

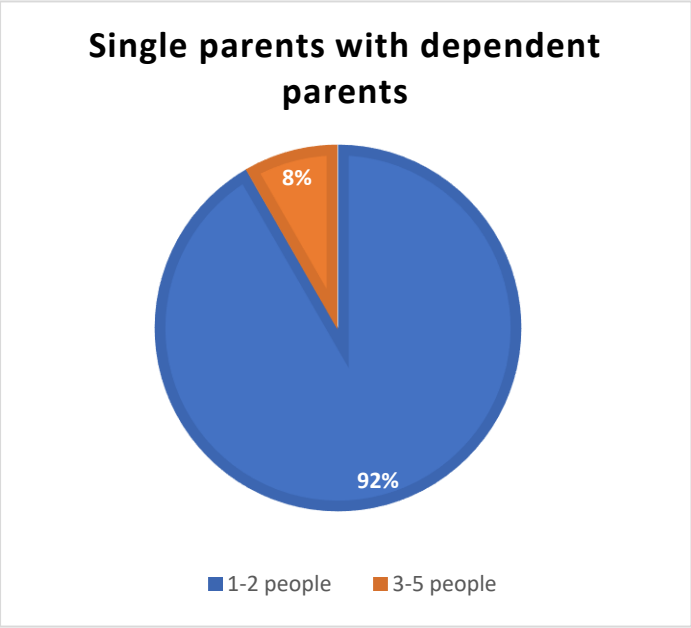


Figure 23: Single parents with dependent parents

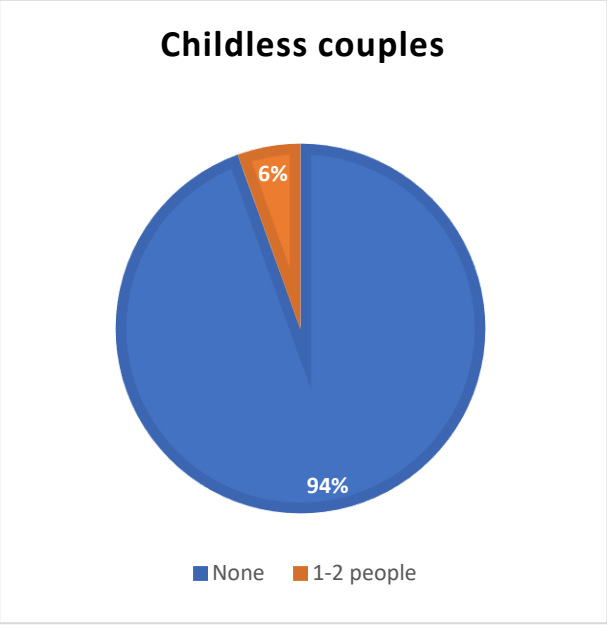


Figure 24: Childless couples

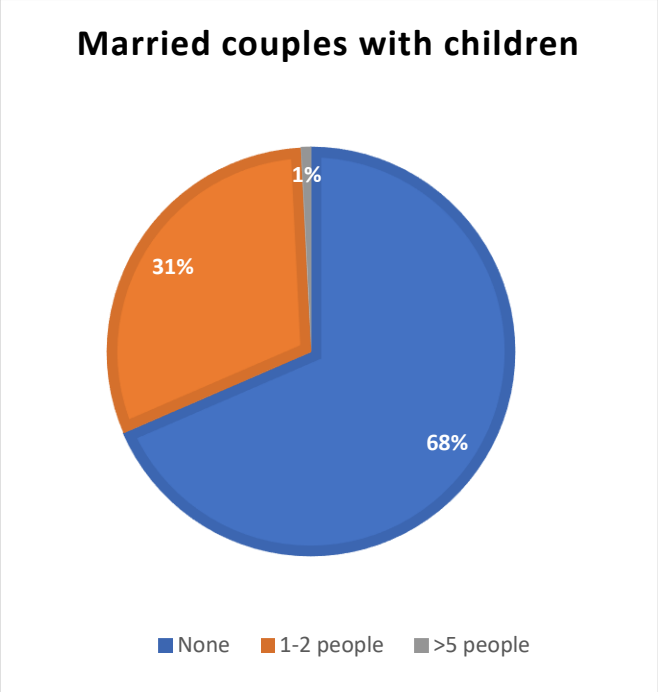


Figure 26: Married couples with children

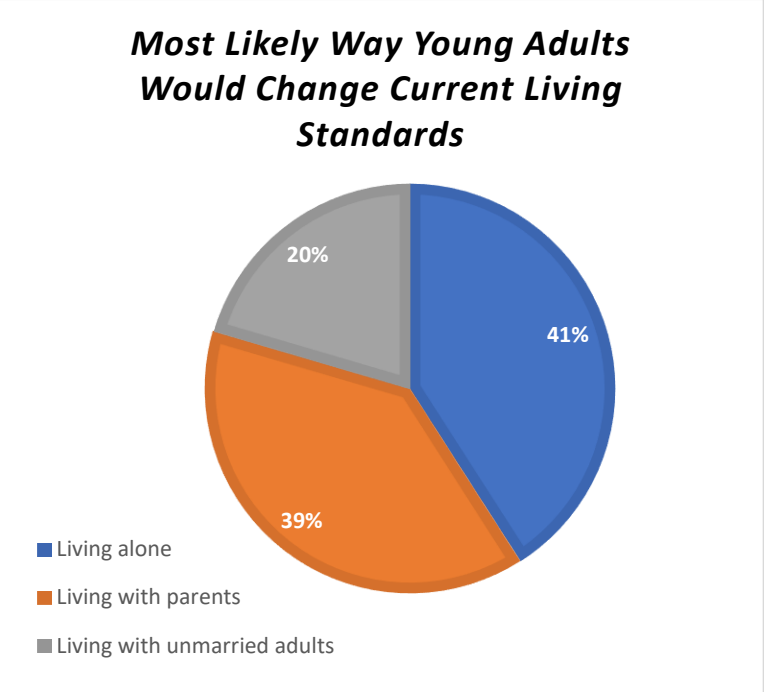
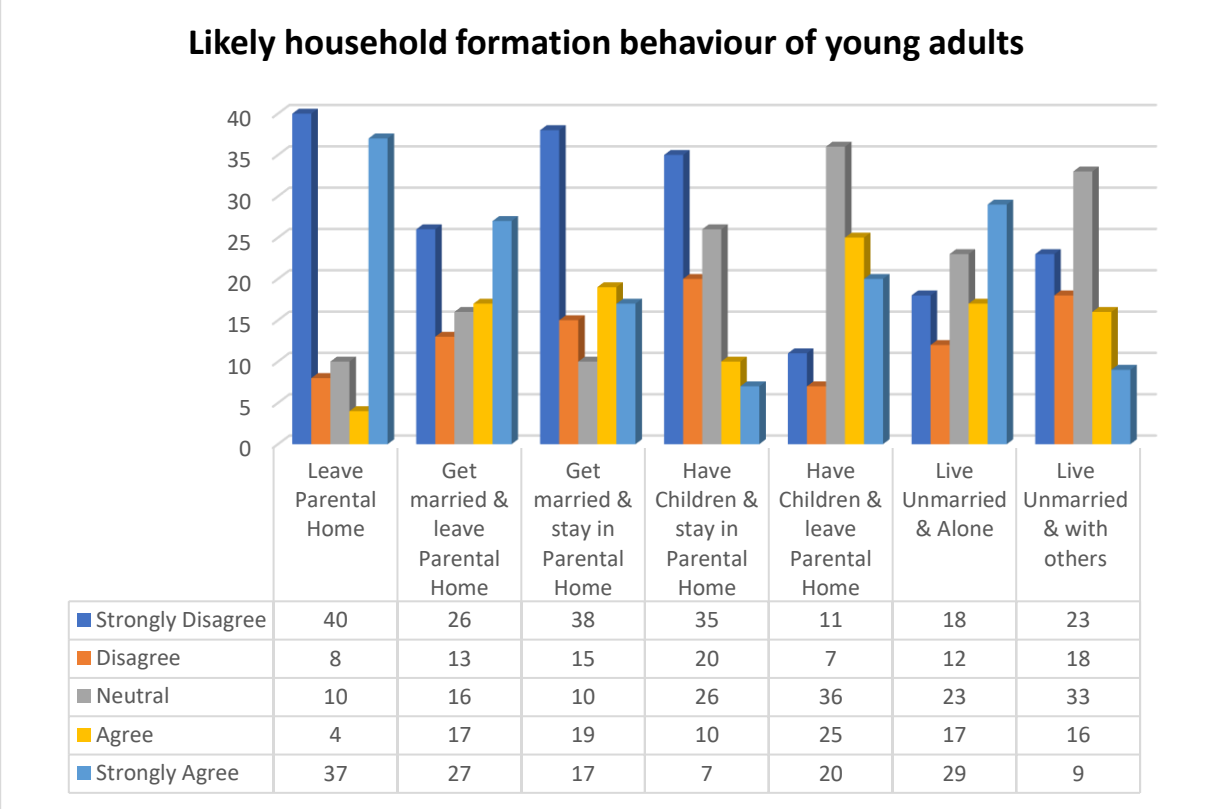


Figure 25: Most likely way young adults would change current living standards

Figure 27 represents the likely household formation behaviour of young adults within the community.



	Leave Parental Home	Get married & leave Parental Home	Get married & stay in Parental Home	Have Children & stay in Parental Home	Have Children & leave Parental Home	Live Unmarried & Alone	Live Unmarried & with others
Strongly Disagree	40	26	38	35	11	18	23
Disagree	8	13	15	20	7	12	18
Neutral	10	16	10	26	36	23	33
Agree	4	17	19	10	25	17	16
Strongly Agree	37	27	17	7	20	29	9

Figure 27: Likely household formation behaviour of young adults

Tables 4 – 10 represent the results obtained regarding potential influential factors on young adults' behavioural patterns.

Table 4: Income levels of young adults in the household are likely to influence their formation of a new household

Income levels of young adults in the household are likely to influence their formation of a new household	
Strongly disagree	27
Disagree	22
Neutral	19
Agree	14
Strongly agree	17
Total	**99**

Table 5: Change of kin numbers staying in the household are likely to influence young adults' formation of a new household

Change of kin numbers staying in the household are likely to influence young adults' formation of a new household	
Strongly disagree	16
Disagree	22
Neutral	23
Agree	20
Strongly agree	18
Total	**99**

Table 6: Age/gender roles of young adults in the household are likely to influence their formation of a new household

Age/gender roles of young adults in the household are likely to influence their formation of a new household	
Strongly disagree	9
Disagree	16
Neutral	35
Agree	20
Strongly agree	19
Total	**99**

Table 7: Quality of available services in the area are likely to influence young adults in the Household to form a new household

Quality of available services in the area are likely to influence young adults in the household to form a new household	
Strongly disagree	10
Disagree	22

Neutral	22
Agree	22
Strongly agree	23
Total	**99**

Table 8: Modern communication and transportation services are likely to influence young adults in the household to form a new household

Modern communication and transportation services are likely to influence young adults in the household to form a new household	
Strongly disagree	16
Disagree	14
Neutral	25
Agree	17
Strongly agree	27
Total	**99**

Table 9: The low quality of life in the other available households is the reason young adults in the household continue to stay in this household

The low quality of life in the other available households is the reason young adults in the household continue to stay in this household	
Strongly disagree	48
Disagree	8
Neutral	18
Agree	9
Strongly agree	16
Total	**99**

Table 10: Availability of employment opportunities in and around this area/place is the reason for young adults continued stay in the household

Availability of employment opportunities in and around this area/place is the reason for young adults continued stay in the household	
Strongly disagree	65
Disagree	3
Neutral	19
Agree	8
Strongly agree	4
Total	**99**

5.1.4. Physical features

This section will analyse the physical aspect or dimension of residential satisfaction, with regard to the residents of the Cornubia Housing Development.

The physical aspect or dimension of residential satisfaction focuses on the dwelling unit type, size, functionality, physical quality, and supporting facilities within the dwelling unit.

5.1.4.1. Dwelling unit features and supporting facilities

The dwelling unit typology may influence the quality of the social and physical life of residents. According to the results obtained, 7 (5.5%) respondents were strongly dissatisfied with the dwelling unit features and supporting facilities, 12 (9.4%) respondents were dissatisfied, 29 (22.8%) were neutral, 36 (28.3%) respondents were satisfied, and 43 (33.9%) respondents were strongly satisfied. The overall structural quality (internal and external) of the dwelling units speaks to the aspect of safety, especially with the heavy rains and floods that KwaZulu-Natal experiences at times. According to the results obtained, 45 (35.4%) respondents were strongly dissatisfied with the structural quality of the units, 19 (15.0%) respondents were dissatisfied, 28 (22.0%) were neutral, 19 (15.0%) respondents were satisfied, and 16 (12.6%) respondents were strongly satisfied.

Figure 28 suggests that residents are fairly satisfied with the typology of their dwelling unit, includes its shape and dimensions. However, the results suggest that residents are strongly dissatisfied with the overall structural quality. From site observations and informal interviews with residents, the following was

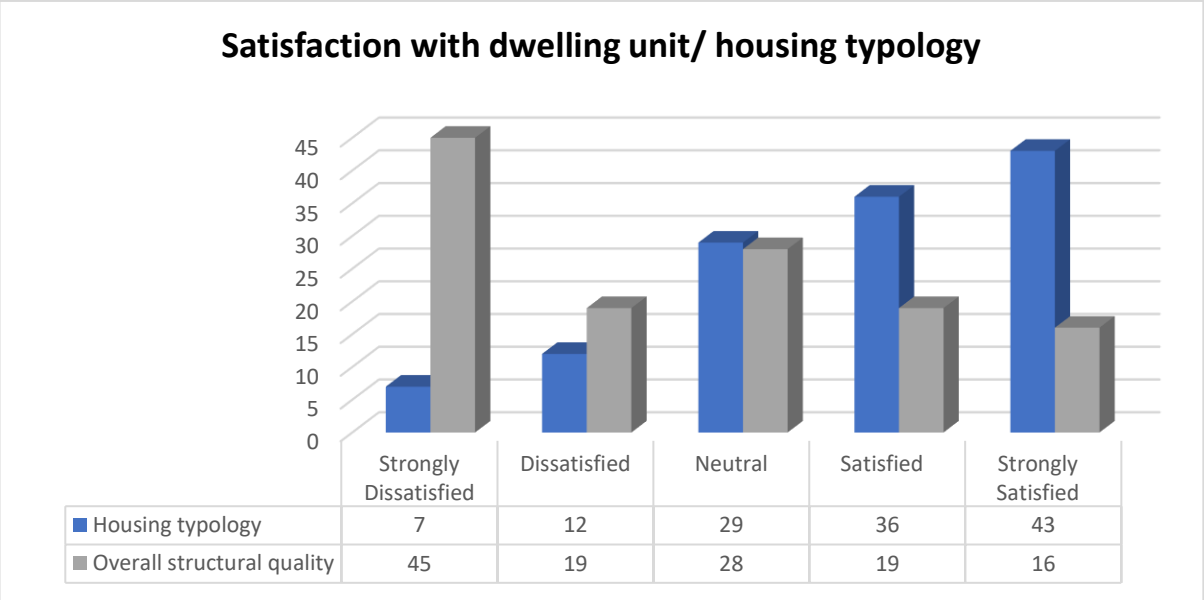
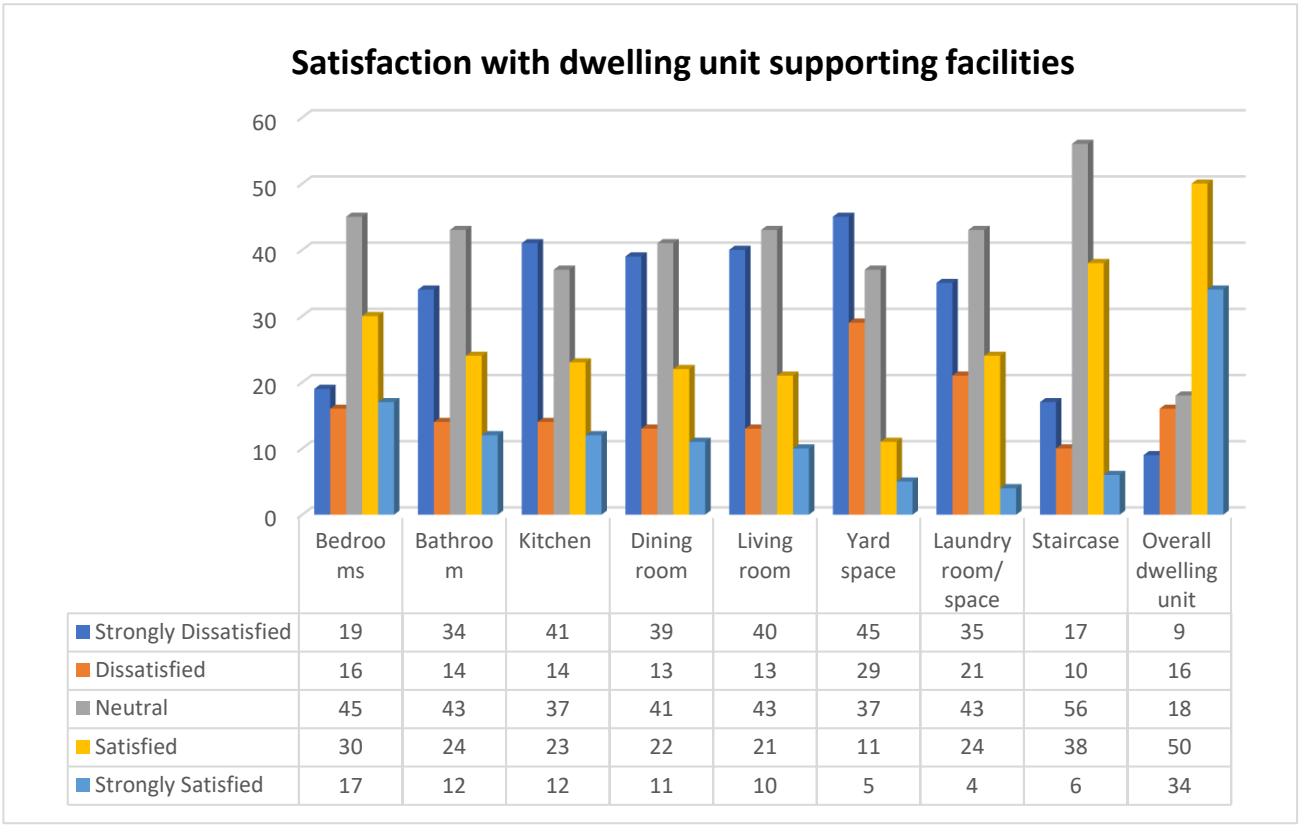


Figure 28: Satisfaction with dwelling unit/ housing typology

deduced: Respondents complained about leaking roofs and cracks in the internal walls, and due to the leaking roofs, many ceilings were beginning to get mouldy, which is a serious health risk. These concerns suggest poor quality of construction which results in the need for frequent maintenance, and ultimately dissatisfaction on the part of residents. Respondents were thereafter asked more detailed questions with regard to dwelling unit features, in order to identify the key issue causing their overall dissatisfaction with the overall structural quality.

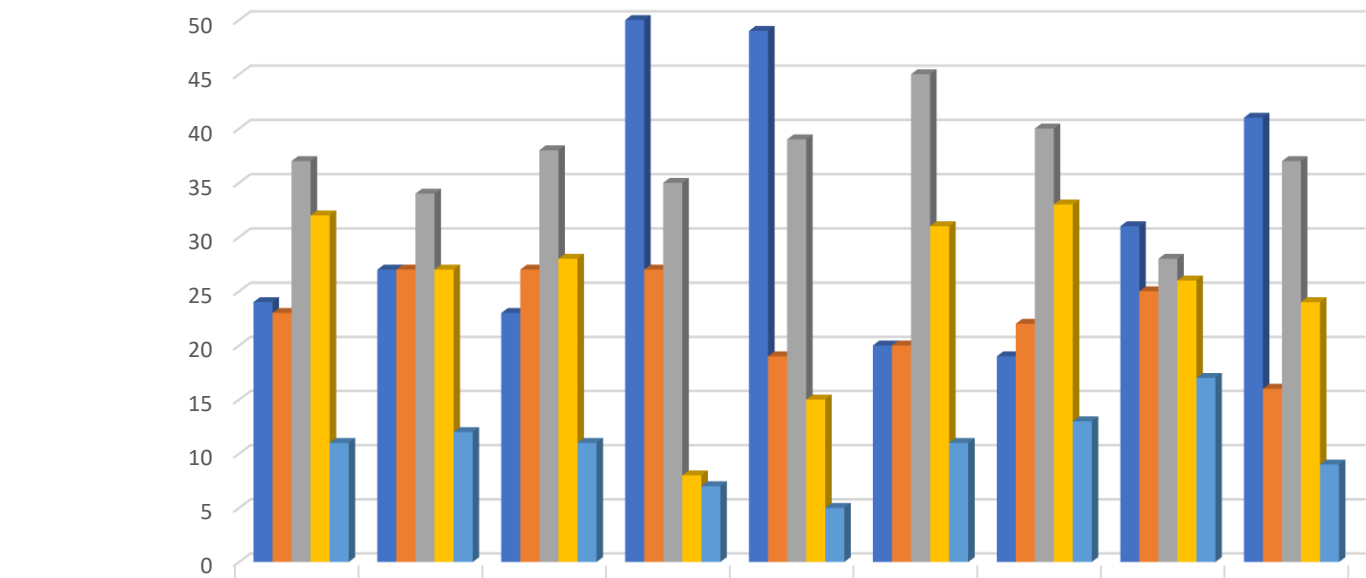
Figure 29 represents a summary of respondents' satisfaction with various dwelling unit supporting facilities. Respondents were asked for their views and level of satisfaction on the size, condition, and location of specific features, i.e., the bedrooms, bathroom, kitchen, dining room, living room, yard space, laundry room and staircase. From this we can deduce that residents are dissatisfied with majority of the internal features, specifically the yard space, kitchen and living room. Respondents were most satisfied with the size, condition, and location of their units. As shown on the graph, a great number of respondents were neutral for the majority of the questions – these residents mentioned that they were grateful and thankful for whatever they were given, and many used the phrase "*we can't really complain*".



	Bedrooms	Bathroom	Kitchen	Dining room	Living room	Yard space	Laundry room/ space	Staircase	Overall dwelling unit
Strongly Dissatisfied	19	34	41	39	40	45	35	17	9
Dissatisfied	16	14	14	13	13	29	21	10	16
Neutral	45	43	37	41	43	37	43	56	18
Satisfied	30	24	23	22	21	11	24	38	50
Strongly Satisfied	17	12	12	11	10	5	4	6	34

Figure 29: Satisfaction with dwelling unit supporting facilities

5.1.4.2. Public and neighbourhood facilities



	Health facilities	Social facilities	Educational facilities	Retail facilities	Paraplegic facilities	Sports & recreational activities	Public open spaces	Public transportation	Pedestrian infrastructure & facilities
Strongly Dissatisfied	24	27	23	50	49	20	19	31	41
Dissatisfied	23	27	27	27	19	20	22	25	16
Neutral	37	34	38	35	39	45	40	28	37
Satisfied	32	27	28	8	15	31	33	26	24
Strongly Satisfied	11	12	11	7	5	11	13	17	9

Figure 30: Satisfaction with public and neighbourhood facilities

Figure 30 represents a summary of resident's satisfaction with public and neighbourhood facilities – which has been analysed in greater detail below.

a. Health care facilities

Health care facilities is a major component in any residential development as it is a key component to creating a sustainable community. Additionally, many residents have been relocated from severely uninhabitable living conditions with little or no access to health care.

When asked about health care facilities and access, respondents responded as follows: 24 (18.89%) respondents were strongly dissatisfied, 23 (18.11%) were dissatisfied, 37 (29.13%) were neutral, 32 (25.19%) were satisfied, and 11

(8.66%) respondents were strongly satisfied. As per the survey, 33.85% were somewhat satisfied while 18.11% were somewhat dissatisfied. The remaining 29.13% responded neutrally – however it should be noted that these respondents seemed somewhat confused or unsure about their response. Also, it should be noted that many residents have never had adequate access to sustainable and appropriate health care facilities and are grateful and satisfied for whatever they have.

Many of the respondents mentioned that they knew of the mobile clinic service and that they had utilised it; however, several residents mentioned that they knew of the service but were unclear about when it was supposed to come – it was very inconsistent. Those residents who indicated that they were not happy with the facilities, mentioned that they travelled to Phoenix or Verulam, which are approximately 10 to 15 minutes away (by vehicle), to obtain medical treatment. Also, it should be noted that emergency medical facilities are somewhat limited – and in an area where public transportation is the prime means of transportation, travelling far distances in the case of an emergency is not viable.

b. Educational facilities

With regard to educational facilities, plans have been finalised for a primary and a high school in the area. The Department of Education was supposed to make provision for funds to transport children to nearby schools prior to these facilities being operational, however this did not happen (Mzolo 2016). Due to this, several learners were forced to leave school as they could not afford to travel on a daily basis. Temporary schools have been active since January 2015. The KwaZulu-Natal Department of Education bought 25 mobile classrooms and these were on site by December 2014.

With regard to satisfaction with educational facilities, 23 (18.11%) respondents were strongly dissatisfied, 27 (21.25%) were dissatisfied, 38 (29.92%) were neutral, 28 (22.04%) were satisfied, and 11 (8.66%) respondents were strongly satisfied.

A study conducted by Singh (2019) consisted of a social facility section, in which the researcher investigated the provision of several facilities within Cornubia Phase 1A. The development proposed the establishment of one primary school, known as the Solomon Mahlangu primary school, which has been operating from a temporary prefab container structure (Singh 2019). Respondents

(parents) mentioned that these classrooms were overcrowded, with approximately 40 learners per classroom. However, once cross-referenced with the CSIR guidelines, 40 learners are an appropriate number for a school of this size. Also the school is situated between 20 and 300 meters away from residents' houses (Singh 2019). It should be noted that this school was intended to be temporary until such time as the permanent primary school was built.

Residents informed researchers that there was no secondary school in the area, and that those who wished to obtain a secondary education needed to travel to Phoenix or Verulam.

The CSIR standards (CSIR 2015) stipulate that one secondary school should have the capacity to accommodate a community of 2500 people. An estimated calculation of the population size within the community of Cornubia Phase 1A, stipulates an average of 2000 – 2400 people (Singh 2019). Therefore, in terms of the standards stipulated, a secondary school is not justifiable. It should be noted that the guidelines include that the average distance to a secondary school should be not more than 10 kms one way. As such, the closest secondary school is within the stipulated conditions. Thus, we can conclude that planners were correct in the provision of educational facilities with regard to the distance threshold, as the nearest secondary school is within the stipulated range (Singh 2019).

When respondents were asked about educational facilities, several of them expressed their dissatisfaction by stating that the temporary school did not have the capacity to accommodate the children of the community. This resulted in children dropping out of school or travelling great distances to the nearest school that was accessible. It should be noted that this resulted in children crossing the R102 in order to get to this school. Unfortunately, there are no pedestrian bridges, and this has resulted in several accidents as children have attempted to cross during busy traffic hours. Residents have taken to the streets to protest as a result of these incidents (Govender 2020).

c. Retail facilities

With regard to retail facilities, 50 (39.37%) respondents were strongly dissatisfied, 27 (21.25%) were dissatisfied, 35 (27.55%) were neutral, 8 (6.29%) were satisfied, and 7 (5.51%) respondents were strongly satisfied.

From the results obtained and observations made, respondents seemed to be highly dissatisfied by retail facilities within the area. Respondents mentioned

that there are small spaza shops within the community which are conveniently within walking distance, which are utilised for their daily necessary goods. However, they must travel to Cornubia Mall, Gateway, Phoenix, or Verulam to buy monthly groceries. The intention behind the Cornubia Mall was to service this new population. However, “it’s just not for us” was the response received from a respondent when asked about the mall.

d. Sports and recreational facilities and public open space

With regard to sports and recreational facilities, 20 (15.75%) respondents were strongly dissatisfied, 20 (15.75%) respondents were dissatisfied, 45 (35.43%) were neutral, 31 (24.40%) were satisfied, and 11 (8.66%) were strongly satisfied.

With regard to public open spaces, 19 (14.96%) respondents were strongly dissatisfied, 22 (17.32%) were dissatisfied, 40 (31.49%) were neutral, 33 (25.98%) were satisfied, and 13 (10.23%) respondents were strongly satisfied.

During the informal interviews, several respondents informed data collectors that there were no such facilities (not even an open sports field or children’s playground) within the area. However, upon further investigation and observations, a sports field and two playgrounds were found down the road within walking distance. The only conclusion that can be made from this is that there seems to be lack of communication and access to information. This was also the reason for such a high number of “neutral” responses from residents – as they seemed unaware and a little confused.

e. Transport facilities/Access/Preference

The Cornubia Housing Programme is located within close proximity to the bus rapid transport routes, which pass through the Cornubia development. The Cornubia route connects Umhlanga with Waterloo, Phoenix, and Dube trade port, north of King Shaka International Airport (KSIA). The housing development proposal intended to link Cornubia to the Go-Durban project, but unfortunately this has not yet been achieved (Jordan 2020). Due to this vision, Cornubia did not plan for a public transportation network within the community. As a result, the development lacks a taxi rank and demarcated taxi stops.

Table 11: Modes of transportation

What kind of transport do you use to travel anywhere you want to go during this pandemic period?		
Mode of transport	**Number of respondents**	**Percentage (%)**
Taxi	81	64
Public transport (excluding taxis)	17	13
Private car	16	13
Uber	11	7
Walking	1	1
None	1	1
Total	**127**	**100%**

Table 11 represents the results obtained with regard to respondents' preferred mode of transportation. The results indicate that the majority of the residents rely on taxis as their primary mode of transportation (64%). The second most used mode of transport by residents was buses and trains (13%). There were a few residents with access to private vehicles (13%) and Uber/Bolt services (7%). Very few respondents preferred walking as a mode of transportation, as they stated that the distances to many amenities/activities were not within walking distance and weather conditions generally did not permit walking far distances. Also, respondents complained that in order to get a taxi they needed to walk a distance from their houses.

Although the questions regarding transportation were asked in the context of the Covid-19 pandemic, residents elaborated that their transportation patterns had been the same or similar before the pandemic.

As explained above, the most used mode of transportation within the study area is public transportation, specifically taxis. Taxis are the primary mode of transport for most South Africans, as they provide the most affordable transportation. Taxis are also generally easily available and the best option to travel into central business districts. Respondents pointed out that taxis are accessible Monday to Sunday from 05:00 to 19:00. They are also generally easily available and the best option to travel into the CBD. Many respondents stated that the taxi pick-up points were within close proximity to their households – approximately 30 to 390m, which meets the requirements stipulated by the CSIR (Singh 2019).

Despite the positive feedback received from the majority of the study sample, a handful of respondents identified limitations and difficulties associated with this mode of transportation. They elaborated that the pick-up points were not close to their households and that the taxis were overcrowded. Also, many of the taxis first took you into the centre of town, and thereafter you needed to find another taxi to get to your desired destination.

Table 12: Transportation behaviour changes during the Covid-19 pandemic

Do you feel this mode of transport provides social distancing?	**Yes**	**No**	
	32%	68%	
Do you feel safe from contracting Covid-19 using this mode of transport?	**Yes**	**No**	
	32%	68%	
How often do you have to travel using this mode of transport during this pandemic?	**Everyday**	**Several days a week**	**Rarely**
	53 %	40%	7%

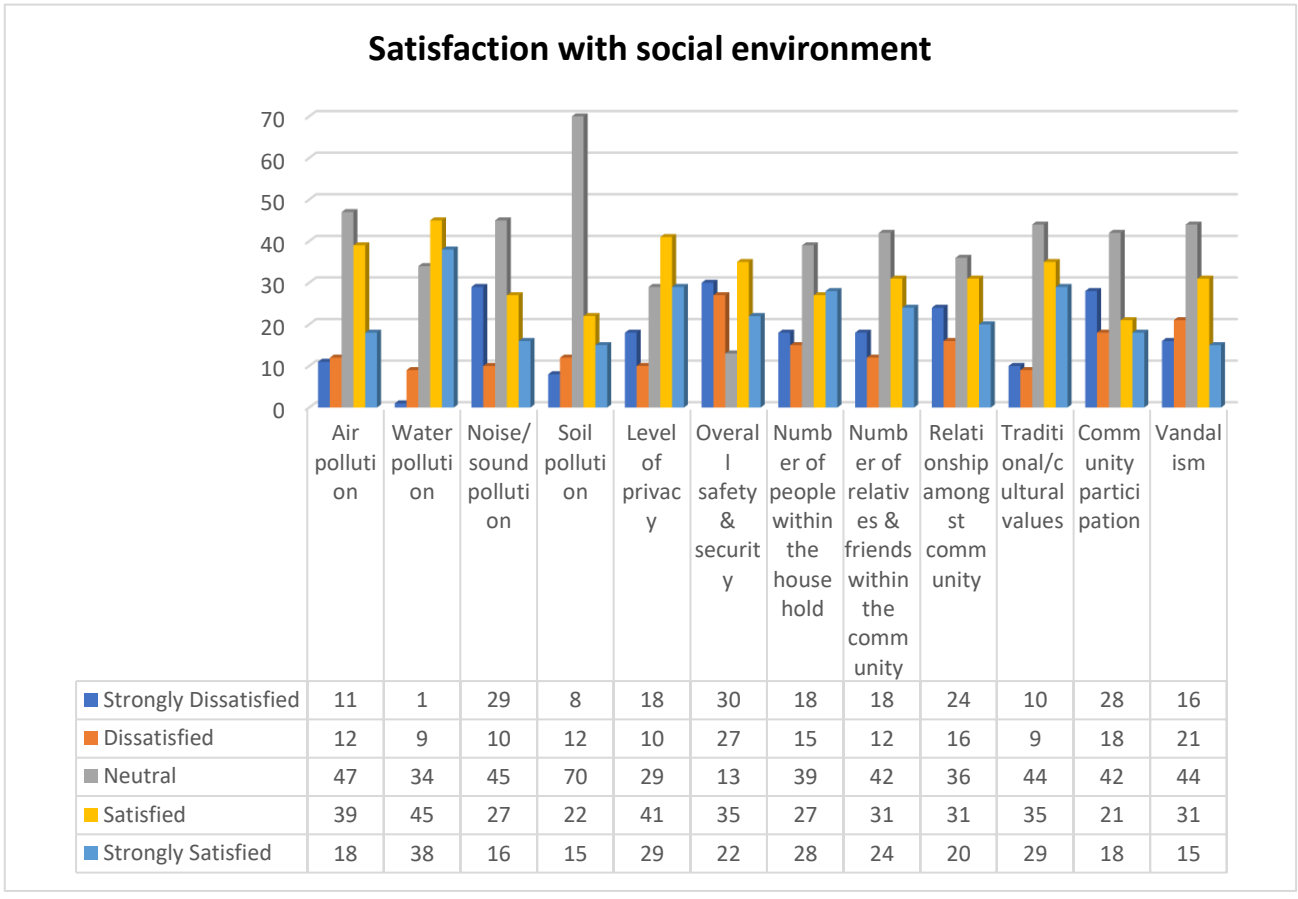
With regard to transportation mode preference, it was important to ask relevant follow-up questions to gain a deeper understanding of resident's satisfaction levels and patterns. Table 12 shows the follow-up questions respondents were asked, which were questions in relation to the Covid-19 pandemic. Respondents were asked if they believed that their chosen mode of transportation provided them with appropriate social distancing. The survey shows that 32% of the respondents answered "*Yes*", while 68% answered "*No*". Respondents were thereafter asked how often they utilised their preferred mode of transportation. While many may assume that daily traveling had come to a halt due to the pandemic, this was not the case. Despite the pandemic concerns, 53% of the respondents continued their daily activities using their preferred mode of transportation every day, while 40% of the respondents limited their travels to several days a week. However, 7% of the respondents indicated that they rarely travelled. When asked about their level of safety in these modes of transportation, with regard to contracting Covid-19, the majority of the respondents did not feel safe. The survey shows that 32% of the

respondents felt safe, these mostly including respondents who travelled by means of private transportation. With regard to the remaining 68% who did not feel safe, the majority stated that they made use of public transportation, especially taxis. These respondents elaborated that many taxis did not provide safe social distancing protocols and they were always full or over capacity. Many passengers did not wear masks and on many occasions hand sanitiser was not provided. It should be noted that even though these questions were asked in the context of the Covid-19 pandemic, residents did inform researchers that their daily patterns were somewhat similar or the same.

5.1.5. Social aspect

5.1.5.1. Social environment (community and neighbourhood relation

The residents of the study area were asked a series of questions pertaining to the social environment, as this is believed to play a significate role in the level of residential satisfaction achieved. Figure 31 represents the level of satisfaction achieved by residents with regard to their social environment.



	Air pollution	Water pollution	Noise/ sound pollution	Soil pollution	Level of privacy	Overall safety & security	Number of people within the household	Number of relatives & friends within the community	Relationship amongst community	Traditional/cultural values	Community participation	Vandalism
Strongly Dissatisfied	11	1	29	8	18	30	18	18	24	10	28	16
Dissatisfied	12	9	10	12	10	27	15	12	16	9	18	21
Neutral	47	34	45	70	29	13	39	42	36	44	42	44
Satisfied	39	45	27	22	41	35	27	31	31	35	21	31
Strongly Satisfied	18	38	16	15	29	22	28	24	20	29	18	15

Figure 31: Satisfaction with social environment

With regard to air pollution, 11 (8.66%) respondents were strongly dissatisfied, 12 (9.44%) respondents were dissatisfied, 47 (37%) were neutral, 39 (30.70%) were satisfied, and 18 (14.17%) were strongly satisfied.

In terms of water pollution, 1 (0.7%) respondent was strongly dissatisfied, 9 (7.08%) were dissatisfied, 34 (26.77%) were neutral, 45 (35.43%) were satisfied, and 38 (29.92%) respondents were strongly satisfied.

With regard to noise/sound pollution, 29 (22.83%) respondents were strongly dissatisfied, 10(7.87%) were dissatisfied, 45 (35.43%) were neutral, 27 (21.25%) were satisfied, and 16 (12.59%) were strongly satisfied.

With regard to soil, 8 (6.29%) respondents were strongly dissatisfied, 12 (9.44%) respondents were dissatisfied, 70 (55.11%) were neutral, 22 (17.32%) were satisfied, and 15 (11.81%) respondents were strongly satisfied.

In relation to privacy, 18 (14.17%) respondents were strongly dissatisfied, 10 (7.87%) were dissatisfied, 29 (22.83%) respondents were neutral, 41 (32.28%) were satisfied, and 29 (22.83%) respondents were strongly satisfied.

With regard to the overall safety and security, 30 (23.62%) respondents were strongly dissatisfied, 27 (21.25%) were dissatisfied, 13 (10.23%) were neutral, 35 (27.55%) were satisfied, and 22 (17.32%) respondents were strongly satisfied.

In relation to the number of people within the household, 18 (14.17%) respondents were strongly dissatisfied, 15 (11.81%) were dissatisfied, 39 (30.70%) were neutral, 27 (21.25%) were satisfied, and 28 (22.04%) were strongly satisfied.

Respondents were asked to rate their level of satisfaction in relation to the number of relatives and friends in the area, as this could serve a vital role in the aspect of residential satisfaction. Of the respondents, 18 (14.17%) were strongly dissatisfied, 12 (9.44%) were dissatisfied, 42 (35.43%) were neutral, 31 (24.40%) were satisfied, and 24 (18.89%) were strongly satisfied.

With regard to community relationships, 24 (18.89%) respondents were strongly dissatisfied, 16 (12.59%) respondents were dissatisfied, 36 (28.34%) were neutral, 31 (24.40%) were satisfied, and 20 (15.74%) were strongly satisfied.

With regard to being able to maintain tradition and cultural values, 10 (7.87%) respondents were strongly dissatisfied, 9 (7.08%) were dissatisfied, 44

(34.64%) were neutral, 35 (27.55%) were satisfied, and 29 (22.83%) respondents were strongly satisfied.

In relation to community participation, 28 (22.04%) respondents were strongly dissatisfied, 18 (14.17%) were dissatisfied, 42 (33.07%) were neutral, 21 (16.53%) were satisfied, and 18 (14.17%) were strongly satisfied.

With regard to vandalism, 16 (12.59%) respondents were strongly dissatisfied, 21 (16.53%) were dissatisfied, 44 (34.64%) were neutral, 31 (24.40%) were satisfied, and 15 (11.81%) respondents were strongly satisfied.

5.1.6. Impact of Covid-19 pandemic

The Covid-19 pandemic had a huge impact on the lives of most citizens globally. As a result of the global health concerns, house quarantine was encouraged as it was considered to slow the spread of the disease and to prevent outbreaks. This quarantine period highlighted the main concerns and issues experienced by residents, in most cases. Table 13 shows the results obtained with regard to the impact the pandemic had on residents' behaviour patterns towards neighbours and the community.

Table 13: Impact of Covid-19 pandemic on resident's behaviour patterns towards neighbours and the community.

How did communication with people in the household take shape during this Covid-19 pandemic period?	**Much better**	**Somewhat good**	**Unchanged**	**Worse**	**Much worse**
	3%	13%	61%	20%	3%
How did your communication with relatives and friends take shape during this pandemic period?	**Much better**	**Somewhat good**	**Unchanged**	**Worse**	**Very badly**
	2%	13%	61%	21%	3%
How was your communication with your neighbours shaped during this pandemic period?	**Much better**	**Somewhat good**	**Unchanged**	**Worse**	**Much worse**
	2%	13%	62%	20%	3%
How often did you meet with your neighbours during this pandemic?	**Once a week**	**Once every two weeks**	**Every month**	**Rarely**	**Never**
	32%	26%	22%	15%	5%

5.2. Inferential statistics

According to Johnson, Christensen and Turner (2014), inferential statistics are techniques used to make generalisations about the overall population by using the subject sample. Allmark and Machaczek (2018) elaborate that researchers use inferential statistics because sampling errors are naturally common – thus a sample is not expected to be a prefect representation of the subject population.

As mentioned above, the study utilised the SPSS software to process the data collected and to assist in interpreting and analysing the results. Three significant tables have been deduced from this process, i.e., the *model summary table*, the *ANOVA table*, and the *coefficients table*.

The model summary table reports the strength of the relationship between the model and the dependent variable. The table provides the R, R2, the adjusted R2, and the standard error of the estimated, which can be used to determine how well a regression model fits the data.

R – *Multiple Correlation Coefficient* – measures the strength of association between the independent variables and the dependent variable. A large value indicates a strong relationship (Abdi 2007).

R^2 – *Coefficient of Determination* – is a statistical measure in a regression model that determines the proportion of variance in the dependent variable that can be explained by the independent variable (Mittlböck and Schemper 1996).

Adjusted R^2 – a modified version of R^2 that has been adjusted for the number of predictors in the model. The adjusted R^2 increases only if the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected by chance (Mahmood, Seyala and Algamal 2020).

Standard error of the estimated – represents the average distance that the observed values fall from the regression line.

According to Kumar (2018) the coefficient of determination is a statistical measurement used when predicting the outcome of an event, by examining how differences in one variable can be described by the difference in the second variable.

This coefficient assesses how strong the linear relationship is between independent and dependent variables. The coefficient of determination is also

referred to as R-squared (or R^2). As indicated in the model summary table (Table 14), the R-squared value is 0.087, which implies that the independent variables cause 8.7% change in the dependent variable (Residential Satisfaction).

Table 14: Model summary table

Model summary table				
Model	**R**	**R square**	**Adjusted R square**	**Std. error of the estimate**
1	.295[a]	.087	.006	.651

a. Predictors: (Constant), Covid impact, minimum housing units, which population group do you identify yourself with, household formation behaviour, gender, highest qualification, age group, what is the estimated monthly income of the household head.

The ANOVA table looks at whether the overall model is a significant predictor of the outcome variable. This table tells us the extent to which the individual predictor variables contribute to the model (St and Wold 1989). The ANOVA (Table 15) results show that the p-value is 0.389, which is greater than 0.05, hence the relationship between the dependent variable and independent variables is not significant.

Table 15: ANOVA table

ANOVA table						
Model		**Sum of squares**	**df**	**Mean square**	**F**	**Sig.**
1	Regression	3.638	8	.455	1.073	.389[b]
	Residual	38.140	90	.424		
	Total	41.778	98			

a. Dependent variable: Residential satisfaction
b. Predictors: (Constant), Covid impact, minimum housing units, which population group do you identify yourself with, household formation behaviour, gender, highest qualification, age group, what is the estimated monthly income of the household head.

5.2.1. Regression analysis

A regression analysis allows a researcher to compare the relationship between two variables, i.e., the dependent and the independent variables (Wegner 2010). Linear regression analysis identifies the straight-line equation which represents the relationships between two numeric variables, i.e., the dependent

and independent variables. Table 16 represents the variables used to formulate the regression model.

Table 16: Regression analysis variables

Variable	*Xn*
Respondents gender	*X1*
Respondents age group	*X2*
Which population group do you identify yourself with?	*X3*
Respondents' highest qualification	*X4*
What is the estimated monthly income of the household head?	*X5*
Young adults	*X6*
Household formation behaviour	*X7*
Covid impact	*X8*

Unstandardised coefficients assist in identifying the impact that the independent variable has on the dependent variable, while all other independent variables are held constant (Skrepnek 2005). When testing for statistical significance, researchers test whether the unstandardised coefficients are equal to 0 in the population. If the p-value is less than 0.05, it can be concluded that the coefficients are statistically significantly different to 0. The t-values and corresponding p-value is located in the "t" and "Sig" columns. Table 17 shows the regression model obtained from the results of this study.

Table 17: The regression model

The regression model						
Model		**Unstandardised coefficients**		**Standardised coefficients**	**t**	**Sig.**
		B	**Std. error**	**Beta**		
	(Constant)	2.469	.997		2.476	.015
X1	Gender	-.061	.136	-.047	-.450	.654
X2	Age group	-.026	.027	-.101	-.935	.352
X3	Which population group do you identify yourself with?	-.035	.065	-.057	-.536	.593
X4	Highest qualification	-.104	.111	-.100	-.938	.351

X5	What is the estimated monthly income of the household head	-.103	.079	-.143	-1.300	.197
X6	Young adults	.262	.136	.202	1.930	.057
X7	Household formation behaviour	.320	.285	.120	1.125	.264
X8	Covid impact	-.070	.101	-.074	-.689	.493

a. Dependent variable: Residential satisfaction

The variables are explained as follows:

β_0 *represents constant*

β_1 denotes the coeffiecient of X1

β_2 denotes the coeffiecient of X2

β_3 denotes the coeffiecient of X3 β_n denotes the coeffiecient of Xn

$$RS = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \cdots + \beta_8 X8$$

$$RS = 2.469 - 0.061 - 0.026 - 0.035 - 0.104 - 0.103 + 0.262 + 0.320 - .070$$

The independent variables with negative coefficients reflect a negative relationship with the dependent variable which is Residential Satisfaction. The independent variables with positive coefficients reflect a positive relationship with the dependent variable. According to the results obtained, the regression analysis model of the independent and dependent variables of residential satisfaction in the Cornubia Housing Development is not significant. The ANOVA results demonstrate that the p-value is 0.389, which is greater than 0.05, hence the relationship between the dependent variable and independent variables is not significant. The coefficient of determination (R^2) was 0.087, implying that an 8.7% variation in residential satisfaction in the Cornubia Housing Development – Phase 1A can be explained by the independent and dependent variables included in this study.

5.2.2. Cross-tabulation

Cross tabulation, also referred to as contingency table analysis or crosstabs, is utilised to quantitatively analyse the relationship between multiple variables by

categorising variables together to enable the researcher to understand the correlation between the different variables. The dependent variable, i.e., Residential Satisfaction, was cross-tabulated with significant independent variables to analyse the relationship shared. A chi-square test was performed in order to test whether the results of the cross-tabulation were statistically significant or not. When testing for significance the p-value is observed. If $p < 0.05$, then we deduce that there is a statistical significance. The study analysed several independent variables against the dependent variable, of which the following were identified as statistically significant.

Table 18:Cross-tabulation – Residential Satisfaction Vs Race Group

Variable of interest		Race Group			
		African/Black	**Coloured**	**White**	**Indian**
Level of Residential Satisfaction	Chi-square = 0.014	**75 (59.06%)**	**17 (13.39%)**	**26 (20.47%)**	**9 (7.09%)**
Dissatisfied		17 (13.39%)	1 (0.79%)	11 (8.66%)	00 (00%)
Neutral		34 (26.77%)	12 (9.45%)	13 (10%)	7 (5.51%)
Satisfied		24 (19%)	4 (3.15%)	2 (1.57%)	2 (1.57%)

Table 18 shows the cross-tabulation between Residential Satisfaction and the Race Group of residents. The cross-tabulation results of these variables of interest recorded a chi-Square value, or p-value, of 0.014 – therefore these variables have a statistically significant relationship. The study examined the relationship between Race Group and the overall Residential Satisfaction achieved. The total sample size for the study consisted of 127 respondents. A total of 75 respondents identified as *African/Black*. The results show that 17 (22.66%) were dissatisfied, 34 (45.33%) were neutral, and 24 (32%) were satisfied. A total of 17 respondents identified as *Coloured*. The results show that 1 (5.88%) were dissatisfied, 12 (70.58%) were neutral, and 4 (2.52%) were satisfied. A total of 26 respondents identified as *White*. The results show that 11 (42.30%) were dissatisfied, 13 (50%) were neutral, and 2 (7.6%) were satisfied. A total of 9 respondents identified as *Indian*. The results show that 0 (0%) were dissatisfied, 7 (77.77%) were neutral, and 2 (22.22%) were satisfied. In terms of the results, across all race groups, the majority of the respondents achieved a neutral level of residential satisfaction.

5.3. Semi-structured interviews

Semi-structured interviews were carried out with eThekwini Municipality officials who had some involvement in the Cornubia Integrated Human Settlements Project. Unfortunately, due to the Covid-19 pandemic, many key role players did not feel comfortable participating in the study.

Three semi-structured interviews were carried out with municipal officials of the Public Sector Housing Department. The Public Sector Housing Department was established with the purpose of creating a dedicated branch to ensure support to the Human Settlements Unit. The main intention was to provide dedicated capacity in the Unit to ensure facilitative processing of public sector housing applications to achieve town planning approval.

Table 19: Summary of semi-structured interview participants

Municipal Official	Involvement in the Cornubia Development Project
Interviewee A Senior Manager Public Sector Housing Department of Development Planning Planning Environment and Management Unit	Facilitating the planning process
Interviewee B Senior Professional Planner Public Sector Housing Department of Development Planning Planning Environment and Management Unit	Facilitating the planning process: Cornubia Phases 1A & B
Interviewee C Senior Technical Planner Public Sector Housing Department of Development Planning Planning Environment and Management Unit	Facilitating the planning process: Cornubia Phase 2

Interviewee A | Senior Manager | Public Sector Housing | Department of Development Planning | Planning Environment and Management Unit

1. *The Cornubia development is a bold multi-billion-rand project, which is vigorously pursuing the goal of becoming the most liveable city in Africa by 2030. What are your views on this venture?*

The respondent justified that the Cornubia Project was a great success. Being a traditional province, not many people are accepting of this type of housing. Therefore, for the municipality to achieve this type of project and get people to agree to relocate to this project was a great milestone. It allowed for, and opened up the potential for many other projects of a similar nature.

2. *The eThekwini Municipality plans to eradicate approximately 40 years of housing backlog, through a combination of expropriating land and acquiring it through amicable agreements (Nxumalo 2019). What are your views on this goal and method?*

The Cornubia development is an example of just one of the many initiatives that the eThekwini Municipality has adopted in order to address the current housing backlog. The Cornubia development is a step in the right direction as it provides more houses on one's site, as compared to the freehold method which was previously utilised and did not unlock the full potential of the land.

3. *With regard to economic opportunities, the project aims to create approximately 15 000 construction job opportunities and 48 000 permanent job opportunities. What is your opinion on this statement?*

Regarding construction job opportunities, the project has indeed achieved the intended goal. When looking at economic opportunities, there are not as many permanent opportunities compared to construction opportunities. It is now dependent on the community which settles here to create other permanent economic opportunities within the area.

4. *This mass project aims to achieve an integrated human settlement and to increase district integration. What impact will the development have on the surrounding area, in terms of property value, environmental impact, pollution, and traffic constraints?*

The Cornubia development has had and will continue to have a positive impact on the surrounding area. The Umhlanga precinct and the non-residential areas of the Cornubia development creates access to many job opportunities, especially the middle to lower income population group. As such, the Cornubia residents have become the workforce of these area. Ultimately, it brings in a balance more than any negative impact.

5. *There have been several news reports which speak of illegal activities relating to the allocation and "sale" of subsidised housing. What is your opinion and recommendation regarding this issue?*

Unfortunately, this is happening all over, not just in the Cornubia development. There are several factors that may contribute to this, the main one being distance. Generally, people reside in places that are convenient and close to their place of work, so there is a factor of dissatisfaction when they are relocated to areas that are a great distance from the original place occupied. The current economic status of the country should be noted, as not many job opportunities available for people, therefore people are able to generate an income by renting out the subsided house. These people have been residing informally for a long time, which means that they are used to that type of lifestyle, and this makes renting subsidised housing more feasible for them.

Other aspects that need to be taken into account is crime syndicates and corruption. These have a significantly negative impact and the hope is that government can find a way to resolve this, so that one may see the dent that has been made in the housing backlog itself.

6. *Angry and concerned residents of the settlement are demanding that a pedestrian bridge be installed over a busy highway after two children were run over while making their way to school (Govender 2020). With regard to this, what is your opinion on the delivery of infrastructure within the area?*

It is always important to take these factors into consideration when planning for such a development. This incident may possibly be a blindsight to the municipality and developer, therefore it is a lesson learnt.

7. *One the key objectives of the Cornubia development is to ensure sustainability by establishing a framework, delivery and management system that embraces all aspects of human settlements. In your opinion, has this objective been achieved?*

With regard to the Cornubia development, this these objectives have been met. The one shortfall with the overall project would be the issues surrounding the provision of educational facilities. Government has so many silo departments that work together, one may find generally each one is waiting for the other to proceed. When it comes to the Cornubia development project, government was in a way able to put those together and come up with a product that really is for sustainability and a live-work kind of environment.

8. *In your opinion, what impact has the development had on the economic and managerial sector? (Employment opportunities, Transportation, Educational facilities.)*

There has been a positive impact on people's lives. The development allowed people to have a home, get access to job opportunities, and reside in a safe environment. The Cornubia development project was done so seamlessly, and government was able to release title deeds which meant people own the property, therefore, they could always uplift themselves economically in the sense of applying for funding.

9. *In the context of the Covid-19 pandemic in South Africa, what impact do you think this will have on the Cornubia development?*

There was possibly an impact on the development as a result of the Covid-19 pandemic. The construction sector was on a halt which may have affected the overall development timeframe.

10. *In your opinion, do you believe that the Cornubia Integrated Settlements Project has been a success?*

Interviewee A replies that the overall project was definitely a success and it is a project that we can learn a lot from for all future projects. Even though we may not find such a large piece of land as we did with Cornubia, there will still be great opportunities even on a smaller scale.

Interviewee B | Senior Professional Planner | Public Sector Housing | Department of Development Planning | Planning Environment and Management Unit

---

1. *The Cornubia development is a bold multi-billion-rand project, which is vigorously pursuing the goal of becoming the most liveable city in Africa by 2030. What are your views on this venture?*

The Cornubia development is one of the major public investments that government has come up with and as a city we are proud of being the municipality that is fully behind the planning and implementation of the project, working together with provincial human settlements. The project has been considered massive in terms of the social-economic opportunities that one would expect in an integrated housing project like Cornubia.

2. *The eThekwini Municipality plans to eradicate approximately 40 years of housing backlog, through a combination of expropriating land and acquiring it through amicable agreements (Nxumalo 2019). What are your views on this goal and method?*

The Cornubia Project is massive in terms of yield. The overall yield of the project once completed would provide approximately 25 000 units, which has been designed to assist with the housing backlog in the city as well as surrounding areas of the municipality. However, with the current high rate of urbanisation it makes us think twice as to whether we are going to achieve the intended target.

Another important fact that we need to take into account is that there is not enough suitable and well-located land in other areas – this now adds additional pressure on the Cornubia project as it seems to be the only major project that is expected to deliver such a number of units within the municipal area.

3. *With regard to economic opportunities, the project aims to create approximately 15 000 construction job opportunities and 48 000 permanent job opportunities. What is your opinion on this statement?*

We are pursuing this goal, even though it may not be at the desired pace, but we are getting there slowly. It is important to acknowledge that the project has, to date, already created quite a number of employment opportunities for both unskilled and semi-skilled individuals during the construction phases.

One should not forget that the strategic location and planning of Cornubia provides additional formal opportunities within the project and the surrounding vicinity of the project, for example, the latest opening of the Cornubia Shopping Mall which is just south of the residential area of the study, the King Shaka International Airport, and the Gateway shopping centre. It should be noted that Cornubia is the closest settlement to the above-mentioned developments, as such these residents are expected to have access to these job opportunities.

4. *This mass project aims to achieve an integrated human settlement and to increase district integration. What impact will the development have on the surrounding area, in terms of property value, environmental impact, pollution, and traffic constraints?*

Property values are very sensitive to any new developments; however, the finished product of Cornubia is expected to be of high standard. These houses have been built and structured as per the National Building Regulations, with material, which is of good quality, the finishes on these houses are the best – in terms of what we have seen in other countries.

We now need to guard against creation of new informal settlements once the development has been implemented as people may invade open spaces around the development – which may negatively impact the property values of the existing upmarket settlement. If there is proper compliance with the by-laws, regulating land use and prevention of possible invasion of land there shouldn't be a problem.

With respect to traffic volumes, there is no development that doesn't result in additional traffic, however, due to the nature of this integrated development housing project amongst other things that are provided, there are new roads to cater for additional traffic. Even the level of services provided are according to

the standards of the municipality. The important factor now is how we are going to manage what we have invested in; we need to ensure that it does not become something else which is far from what we intended to achieve.

During the interview, the topic of transportation was opened and the discussion of resident's dissatisfaction with the lack of public transportation entering internal residential roads was raised (this information was gathered during interviews with residents and has been further discussed in the findings section). Any development that is planned for the poor needs to provide access to public transportation, which is actually a principle of planning. If the development does not make such provisions, it is it will not be regarded as a sustainable development from a transportation point of view. The layout of the study area does have a hierarchy of roads, some of the roads are not designed to be public transportation roads but instead direct residential access roads therefore one cannot expect these roads to be carrying public transport. With regard to Go Durban, if we are going to ensure that local people are also benefiting from the economic opportunities that the project is able to generate, the local taxi industry must participate because they are an important stakeholder as this is a new development and there is no reason to not allow them to have a stake – it cannot be that just because the city is the developer that there should only be city driven transport provided.

5. The Cornubia development introduces low-income housing in an area of medium-high income housing. In your opinion, do you think relocated dwellers will be able to adapt to this change in environment?

When it comes to housing, the government policy states that people must be provided housing where they are currently residing as there must have been something that informed their decision to reside in that particular location. However, there are instances where it is not always possible to conduct an in-situ upgrade of those informal settlements, therefore the only option is to find space elsewhere which is not necessarily in the vicinity of where people are.

For instance, Cornubia is far from most of these areas and is not surrounded by a number of informal settlements, as it was largely an agricultural land which was managed and cultivated by Tongaat Hulett – as such there was no other option. The intention was to deliver as many housing opportunities as possible at a rather large scale.

The project has not been successful in terms of the provision of health care facilities. While the newly built primary school does include a health care component, the development has not made provision for a hospital to service the community of Cornubia. The closest public hospital would be the Mahatma Gandhi Memorial Hospital, which is approximately 5.5 km away from the development. It should also be noted that this hospital is located across the R102 freeway, which makes it dangerous for residents to cross over.

Unfortunately, there are many negative impacts from a development of this scale and nature, we have to accept that people are linked to the area that they are currently residing at therefore they might have difficulty in transitioning. One of the most important constitutional rights is that individuals should have access to shelter, of which Cornubia has successfully fulfilled. Therefore, while the project may have some shortfalls, it is important to not forget that the provision of shelter has been successfully provided.

6. *There have been several news reports which speak of illegal activities relating to the allocation and "sale" of subsidised housing. What is your opinion and recommendation regarding this issue?*

In terms of the national housing policy, the allocation of completed units to beneficiaries remains the responsibility of Human Settlements working together with local political leadership. Unfortunately, there is an element of corruption which we have heard and seen in local news. On several occasions, people who are meant to benefit as beneficiaries do not necessarily receive these houses, as they are given to people who may have not even been on the waiting list simply because of their political affiliation and their activism. There is also a component of corruption by some officials who are working with our politicians. Any development or project within the municipality is susceptible to corrupt activities. However, the local and the provincial departments should come up with an independent structure or a body of people who are going to be neutral and unbiased, to make sure that the allocation of houses is done fairly.

7. *Angry and concerned residents of the settlement are demanding that a pedestrian bridge be installed over a busy highway after two children were run over while making their way to school (Govender 2020). With regard to this, what is your opinion on the delivery of infrastructure within the area?*

This incident is a result of poor planning on the side of the city. The first phases of Cornubia were supposed to be completed together with the social facilities, especially the provision of educational facilities – as the main reason for residents attempting to cross the freeway is access services and social facilities within Phoenix and in doing so, they placed their lives in danger. Therefore, moving forward as a lesson, we need to prioritise the planning and implementation of social facilities to avoid having people crossing over into Phoenix and placing their lives at risk.

However, it should be noted that so much has been done as a response to this incident. A site has been allocated for a primary school. It should also be noted that the initial development proposal intended for the provision of social facilities to be developed simultaneously with the residential component.

Immediately after the preliminary phases were implemented, the school was supposed to be built as those plans were approved with a school site. However, due to lack of coordination between the municipality, Provincial Human Settlements and Provincial Education, this did not happen. We need to ensure that planning and implementation are done simultaneously. It should also be noted due to the delay in developing the primary school and budget constraints, the temporary primary school was proposed and provided.

8. *One the key objectives of the Cornubia development is to ensure sustainability by establishing a framework, delivery and management system that embraces all aspects of human settlements. In your opinion, has this objective been achieved?*

The Cornubia development is considered an integrated human settlements project in planning and implementation. The project is not just about the provision of brick and water structures for people to have some protection form natural elements.

The project makes provision for school sites because we understand that for one to achieve integrated human settlements, we need to provide educational and skills development facilities. The project has made an effort to create economic opportunities, for example, there is a commercial component with some of the facilities around in action, and there are also social facilities such as parks, which define the quality of life and well-being of people within the area. Over and above that, there is provision of services, i.e., water, sanitation,

stormwater, and refuse collection. While we are achieving these, it goes back to the issue of managing completed projects, we need to be able to manage what is happening in that area if we really want to set a good example in the city. We also need to bear in mind where people are able to pay for these services. We need to accept that there are people who have received houses simply because they are unemployed therefore, they don't receive an income. Also, in terms of the housing policy people who are earning R0 – R3500 have been placed within the development, therefore we need to come up with programmes to assist residents, to enable them to find work. It should not be a norm that if people are unemployed, they should not be expected to pay for services – if this precedent is set then this will create a new problem by discouraging those who can afford to pay for services.

9. In your opinion, what impact has the development had on the economic and managerial sector? (Employment opportunities, Transportation, Educational facilities)

The jobs that are created during the construction phase are temporary, and one needs to have some skill to be able to participate in the formal economy. You need a skill as a prerequisite for one to improve one's life. The Cornubia Mall assists in generating money, in the sense that residents will utilise the services, such as performing their banking needs at the facilities provided within the mall. However, the type of housing that has been provided thus far, may not assist the city or rather the economy. As we have identified previously, the residents of Cornubia are not necessarily employed, therefore the city may not be able to collect its revenue the way it should – as we are dealing with the urban poor. The project has produced very well however it does not necessarily mean that there will be returns from this investment if other types of housing are not introduced, such as Finance Linked Individual Subsidy Programme (FLISP). By providing FLISP housing we will have the participation of banks, whereby residents will be paying monthly instalments – thus enabling them to pay for their own services.

10. In the context of the Covid-19 pandemic in South Africa, what impact do you think this will have on the Cornubia development?

There have been delays with the project as a result of the Covid-19 Pandemic. There was a brief period whereby the city was non- operational due to a national lockdown, therefore the project implementation plans that were in place before Covid could not be perused, as the economic activity was shut down and the municipal officials were unable to operate – resulting in service providers and professional teams not being able to execute the development proposal. This delay has had an impact on the overall project and the estimated timeframe.

11. In your opinion, do you believe that the Cornubia Integrated Settlements Project has been a success?

Interviewee B does believe that the overall project is a success, as one cannot find another project at this scale and quality of services provided.

Interviewee C | Senior Technical Planner | Public Sector Housing | Department of Development Planning | Planning Environment and Management Unit

---

1. The Cornubia development is a bold multi-billion-rand project, which is vigorously pursuing the goal of becoming the most liveable city in Africa by 2030. What are your views on this venture?

The project offers both economic opportunities and social facilities. By creating the industrial area, the development provides job opportunities for the residents of Cornubia which are within close proximity to their residence. Necessary social facilities are provided within the development/area, thus creating an independent node which is able to function smoothly. The development is rather accessible as it is connected to most major road networks. Overall, the project is a step in the right direction as it promotes centrifugal forces i.e., the moving the focus of development from the centre towards the urban periphery. This type of development assists in distributing density levels thus ensuring that the CBD is not over densified as this could lead to the rapid depletion of resources.

2. The eThekwini Municipality plans to eradicate approximately 40 years of housing backlog, through a combination of expropriating land and acquiring

it through amicable agreements (Nxumalo 2019). What are your views on this goal and method?

When we look at the route of expropriating land, the land needs to be developable, land that can be serviced, land that is within close proximity to the CBD, also land that is close to economic and social aspects. If the land is viable, fulfils the above-mentioned conditions, and is carried out in the correct manner, she would agree to the stipulated method.

3. *With regard to economic opportunities, the project aims to create approximately 15 000 construction job opportunities and 48 000 permanent job opportunities. What is your opinion on this statement?*

Interviewee C does not believe that the project has yet completed the stipulated construction job opportunities. However, she does believe that the project has met its goal of permanent job opportunities – taking into account the industrial and commercial component within the project.

4. *This mass project aims to achieve an integrated human settlement and to increase district integration. What impact will the development have on the surrounding area, in terms of property value, environmental impact, pollution, and traffic constraints?*

The development of social housing, as done in Cornubia, will have a positive impact on the property value of neighbouring communities. A comparison has been made between the impact on property value of social housing and informal settlements. While social housing may not have the best impact on property value, it still has a better outcome than informal settlements. Individuals would rather be located next to a social housing project than an informal settlement.

During the interview a follow up question was brought up, regarding the new social housing development being located so close to the Umhlanga area which is regarded as a higher-class area. It is believed that there would be a negative impact on those properties that sit on the border of the new development. Many people would not be inclined to purchase property on the border line between the two areas, as there is a stereotype that social housing developments (lower income housing developments) have high crime rates.

It should be noted that the Cornubia development will have a positive impact on the Phoenix area. The Cornubia development will actually increase the property value within the Phoenix area, as people would prefer having proper structured housing next to them compared to informal housing. Ms Mkhize notes that while the new development might have a slight negative impact on the Umhlanga area, it is important to have a mixture of housing typologies and income groups, in order to create a balance within the area as a whole.

With regard to traffic constraints, there is a notion to say that poor people did not have or cannot afford cars. However, we can now see that that has changed, as almost all residents within the Cornubia development have a vehicle parked within their yard. Therefore, the development will be generating additional traffic, especially in a development which does not make provision for all essential social facilities. This doesn't create an area in which residents can work, live, and play – therefore residents will be forced to travel to other areas in seek of these shortfalls. As we know, the R102 (main freeway access to the development) is already a rather busy road and now we are introducing a whole new community to that network.

It should be noted that this is only the first of many residential phases. The future residential phases of the development will be going up in terms of density and income groups. Therefore, traffic volumes are only going to increase as the development grows.

The development proposal will look at the development of a major transport link of which the frontage will consist of high-rise housing, with the levels decreasing as you travel inwards. The housing along the frontage will be GAP housing, which is more of a middle-income property type, and thereafter, will be the BNG housing types. Therefore, property values along the road frontage will be higher, as it allows quick and easy access to transportation, it also allows the opportunity to create an economic hub. The overall Cornubia development will attempt to bridge the gap between the poor and the rich, by providing a middle-income community.

With regard to environmental impact, this can be avoided with proper planning. However, one cannot stop disasters from happening. All environmentally sensitive areas, such as wetlands and DMOSS, have already been demarcated.

5. *The Cornubia development introduces low-income housing in an area of medium-high income housing. In your opinion, do you think relocated dwellers will be able to adapt to this change in environment?*

   There have been several news reports which speak of illegal activities relating to the allocation and "sale" of subsidised housing. What is your opinion and recommendation regarding this issue?

While residents are being provided with a better living situation in terms of the allocation of a sustainable dwelling unit, the main factor to consider is distance. Most people situate themselves next to or near their existing job opportunity, so by relocating them to drastic distances without providing new job opportunities you create a component of dissatisfaction. This dissatisfaction will result in beneficiaries renting out their subsided house to go back and reside in their previous informal settlements or worse create a new one in their desired location. The Cornubia development doesn't provide a sufficient amount of job opportunities – as a result we find that beneficiaries have been placing these houses for sale or on rent. In such a case, infill development would be the most favourable option – only if the location of the current informal settlement is suitable to be upgraded and relocation would be the last option.

6. *Angry and concerned residents of the settlement are demanding that a pedestrian bridge be installed over a busy highway after two children were run over while making their way to school (Govender 2020). With regard to this, what is your opinion on the delivery of infrastructure within the area?*

The mistake was having residents move into the development without having all the necessary social facilities completed and accessible. One cannot simply build houses without catering for residents' social needs. When working with such a development, all necessary departments need to be involved and included in every process, this includes the Department of Education and the Department of Health.

The new permanent school being developed includes a health care component, a library, and a sports field. However, it should be noted that the health care component is rather small and may not have the capacity to provide services to all residents.

7. *One the key objectives of the Cornubia development is to ensure sustainability by establishing a framework, delivery and management system that embraces all aspects of human settlements. In your opinion, has this objective been achieved?*

From around the year 2018, stormwater and water and sanitation have been having issues with capacity. Now after the recent disasters (floods experienced in KZN), there is more pressure on the capacity and delivery of infrastructure. The comments received from service delivery sectors, with regard to such projects, the main issue is stormwater and water and sanitation. The issue is that certain projects are developed without consulting these necessary service providers, which results in developments lacking access to several services and infrastructure. Building a house or dwelling unit is the simple part, however it is vital to ensure that the supporting service providers have the capacity to service these houses. Also, the maintenance of the existing services is important in such developments. The issues we have been experiencing within Durban with regard to burst pipes which are spilling waste into our beaches.

8. *In your opinion, what impact has the development had on the economic and managerial sector? (Employment opportunities, Transportation, Educational facilities.)*

The development was not managed properly. If one wants to deliver housing there needs to be a clear layout which represents the key objectives, the placement of social facilities and recreational spaces. With regard to the economy, the development has performed well by ensuring the development of the industrial area.

9. *In the context of the Covid-19 pandemic in South Africa, what impact do you think this will have on the Cornubia development?*

The Covid-19 pandemic had a slight impact on the Cornubia development. The impact would have been on the industrial area as most factories were closed down during the national lockdown period, which may have led to workers losing their jobs. With regard to the town planning application process and construction, there was no meaningful impact.

10. In your opinion, do you believe that the Cornubia Integrated Settlements Project has been a success?

Interviewee C does believe that the overall project is a success, aside from the handful of shortfalls and issues that has been highlighted.

To sum up the comments and input received from the above municipal officials, the key shortfall of the Cornubia development project is the lack of coordination with regard to the implementation and service delivery. The planners all touched on the issue of residents being relocated and allocated housing while social facilities were incomplete. As mentioned above, due to the lack educational facilities provided within the Cornubia development, children began to seek these facilities elsewhere. Unfortunately, this resulted in children crossing the busy freeway (R102) as this was the fastest and cheapest way to gain access to educational facilities. Health care has also been identified as a shortfall. While the newly developed school does contain a health care component, this may not be sufficient to service the community of Cornubia. It has been noted that there is a mobile clinic that visits the community; however, this is not a permanent solution. Additionally, the closest government hospital is located approximately 5.5 km away from the community and it is located across a busy freeway. It should be noted that the Cornubia development accommodates the urban poor, therefore residents may not have access to a vehicle to travel to these services, with travelling via public transport or uber possibly being too costly.

Besides these few shortfalls, all three municipal officials agreed that the Cornubia Integrated Human Settlements Project has been a great success and has paved the way for future projects.

5.4. Discussion of findings

The conceptualisation of this study was formed to measure the residential satisfaction of informal settlement dwellers who have been relocated to integrated human settlements. In order to accomplish the intended aim, both quantitative and qualitative methods were utilised, and a case study approach was adopted with a theoretical framework. Semi-structured and in-depth

interviews were carried out with the residents of the Cornubia Development Housing Project.

The key findings of this study demonstrate fluctuating levels of satisfaction and dissatisfaction with the condition of dwelling units, supporting and public facilities. Respondents explained that they were rather satisfied with the houses provided upon relocation – the dwelling units were in excellent condition. However, over time, maintenance of these houses was not consistent and supporting facilities were not provided within the intended timeframe. Several residents began to feel dissatisfied with the size of their houses – in most cases this was a result of a growing family. The size of the subsidised dwelling units is relatively small ($50m^2$). Residents stated that these houses barely have enough room for the whole family, let alone their belongings. This issue was also identified in the developed world, specifically in Australia, where residents communicated issues concerning certain design factors which have negatively impacted their level of satisfaction. In terms of the supporting facilities, several residents were unhappy with access to electricity, as several residents claimed to be unsuccessful in obtaining a power connection. While some struggled with getting connected, others had issues with electrical faults. During the site observation, the researcher found a house which had been burnt down as a result of a power fault. Upon further investigation, residents informed us that this wasn't the first power fault case that was expensive within the study area – this shows poor quality of access and maintenance of the above-mentioned facility.

The study has identified that even though residents are satisfied with the typology, design, and size of the dwelling units provided, they are not satisfied with the overall structural quality. The recent flooding that was experienced in the eThekwini Municipality has only worsened the matter, as the structural integrity of the houses was further compromised. Several respondents complained about leaking roofs and cracks in the internal walls. Due to the leaking roofs, many ceilings were beginning to get mouldy which is a serious health risk. These concerns suggest poor quality of construction resulting in frequent maintenance, ultimately leading to dissatisfaction (Davoodi and Dağlı 2019).

Respondents also expressed their dissatisfaction with educational and healthcare facilities. When it came to healthcare/medical facilities, many respondents mentioned that they knew of the mobile clinic service and that they

had utilised it; however, several mentioned that they knew of the service but were unclear about when it would be there, as it was very inconsistent. Those respondents who indicated that they were not happy with the facilities, mentioned that they travelled to Phoenix or Verulam, approximately 10 to 15 minutes away (by vehicle), to obtain medical treatment. Also, it should be noted that there were no medical facilities located nearby for emergencies – and in an area whereby public transportation is the prime means of transportation, travelling far distances in the case of an emergency is not viable. A similar trend was identified in India by Mahadevia *et al.* (2017), where distant relocation along with lack of appropriate and affordable transport options negatively impact the mobility, work, and livelihoods of a vast majority (Mahadevia *et al.* 2017).

In relation to educational facilities, plans were finalised for a primary and a high school within the area. The Department of Education was expected to make provision for the funding of transportation of children to nearby schools prior to these facilities being operational, however this did not happen (Mzolo 2016). Due to this, several learners were forced to leave school as they could not afford to travel daily. The proposed temporary educational facility, a primary school, has been open since January 2015. However, it does not have the capacity to service the community adequately (Mzolo 2016). Due to the limited access to educational facilities, parents are forced to send children to the closest schools available, which are located across the busy freeway, across which there is no pedestrian bridge (Mzolo 2016). In March 2020, the community of Cornubia resorted to protesting after a major accident where two children, aged six and seven, were knocked down by a motorist while trying to cross the highway. The community demanded that a pedestrian bridge be erected.

For safety and security, the results obtained from the study were not unanimous as respondents had mixed feelings and different views on the issue. While there was a greater number of respondents satisfied (27.55%), there was also a significant number of them who were strongly dissatisfied (17.32%). Several respondents also claimed that the increased levels of unemployment were the reason for the high levels of crime. It important to note that even though several respondents were dissatisfied with the level of safety and security, they informed us that the situation was still better than it had been in their previous living situation. This issue has been identified in the developing world (India) – where relocation sites were found to have an unsafe environment, especially for women and children (Mahadevia *et al.* 2017).

With regard to the overall quality of life, residents were pleased to be relocated to an area which allowed them access to new opportunities, amenities, and a family-friendly environment. However, many respondents noted that adjusting to the new environment has not been as simple as expected. These respondents had been living in an informal situation for many years – therefore such a drastic life change presented a rather difficult transition. A perfect example of this is the provision of the Cornubia Mall. The mall was developed with the intention to service the community members of the Cornubia development. However, when residents were asked about the use of this facility, the response was “it’s just not for us”. Respondents stated that travelling to the mall was rather costly, and that they preferred utilising spaza shops and tuck shops within the community, as these were more convenient and felt more like home.

It should be noted that a great number of respondents responded neutrally to the majority of the questions – as these respondents mentioned, they were grateful and thankful for whatever they were given – many used the phrase “*we can’t really complain*”. It is important to understand that, from the above-mentioned issues, it should not be misconstrued that residents are ungrateful for the opportunities provided. Rather they are pleading that authorities should assist with the identified issues in order to successfully create a sustainable and comfortable environment for them in which to thrive.

5.5. Conclusion

Chapter five has presented the data obtained from residents of the Cornubia housing project, specifically phase 1A, and officials from the eThekwini Municipality. This chapter highlighted responses from residents which was obtained during interviews and field observations. A detailed analysis and an in-depth discussion of findings has been provided. The next chapter outlines the conclusion and key recommendations based on the findings of the study and suggests approaches to improve and enhance the success of such housing projects.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

This is the final chapter and conclusion to the study. Along with providing a summary of the whole study, the chapter will also revisit the research problem, aim, and objectives to arrive at a conclusion and suggest recommendations based on the key findings.

6.1. Synopsis of research

In Chapter 1, Residential Satisfaction or Housing Satisfaction was defined as the level of contentment an individual achieves from one's needs and desires in respect of a house (Abidin *et al.* 2019). Tan (2016) refers to residential satisfaction as an indicator of an individual's general view of their quality of life, while Amérigo and Aragones (1997) inform us that this is a global attitude representing the level of fulfilment of residents' needs and expectations. The concept of Residential Satisfaction looks at the gap between the expectation and the reality of an individual's residential context. Previous studies have shown that the location of low-income or subsidised housing plays a vital role in the level of residential satisfaction achieved. The intention of this study was to look at residential satisfaction from the context of location, the main focus being residents who have been relocated from various informal settlements to newly developed greenfield housing projects. The study was conducted in the community of Cornubia, in the eThekwini Municipality. The Cornubia Integrated Human Settlement Project is one of the initiatives taken to assist with the current challenge of informal settlements. Unlike other greenfield projects, the Cornubia development looks at creating a "city within a city" by providing various mixed-use activities to service the beneficiaries and create economic opportunities, thus eliminating common complications associated with informal settlement relocation projects.

Despite this strategic approach, several adverts have been found reflecting attempts to sell subsidised houses from the Cornubia development, on various forms of social media (Magubane 2020). Is this illegal activity due to lack of residential satisfaction or simply a money-making scheme? The recent protest actions from the community are also evidence of dissatisfaction, as residents demand the installation of a bridge cross the R102 after several pedestrians were knocked down while trying to cross the busy highway (Majola 2020; Ngema and Dawood 2020).

Table 20: Key points of research study

Research statement:	**Residential satisfaction of informal settlement dwellers relocated to integrated human settlements: The case of Cornubia**
Case study area:	The Cornubia Integrated Human Settlement Project – Phase 1A
Aim:	To establish the impact that relocation has on the residential satisfaction levels of informal dwellers, which influences the overall success rate of the greenfield housing project, the Cornubia Integrated Human Settlements Project.

The study aimed to establish the impact that relocation has on the residential satisfaction levels of informal dwellers, which influences the overall success rate of the greenfield housing project: the Cornubia Integrated Human Settlements Project (Table 20).

To achieve the above-mentioned aim, the research study laid out a set of objectives. The first objective looked at preparing a detailed research conceptual and theoretical framework focusing on residential satisfaction, informal settlements, relocation projects, and greenfield projects, to obtain a complete understanding of the phenomenon. Thereafter, the study explored international precedents on residential satisfaction and informal settlements in the context of the developed and the developing world, to assist in understanding the trends surrounding the study topic. The study strategically formulated a methodology to explore the level of residential satisfaction achieved by residents of the Cornubia Integrated Human Settlements Project. Date was collected from Phase 1A, by using structured questionnaires as a quantitative component, to explore the level of residential satisfaction achieved by residents of the Cornubia Integrated Human Settlements Project. Lastly, the findings of the study were discussed and evaluated, in order to make recommendations and to come to a final conclusion.

6.2. Recommendations / Key points

6.2.1. Policy formulation, implementation, and gaps

Simultaneous provision of dwelling units and supporting facilities

Section 26 of the Constitution of the Republic of South Africa states that “the state to take reasonable legislative and other measures within its available

resources to achieve the progressive realisation of the right to adequate housing" (RSA 1996). As a response to this, government has formulated and implemented various housing programmes and policies to assist. The Reconstruction and Development Programme (RDP) was adopted in 1994, post elections, with the intention of providing "houses" or "shelter" to residents. However, the project focused more on quantity rather than on quality. The Breaking New Ground (BNG) programme was thereafter adopted in the year 2004, as an attempt to address the shortfalls of the RDP programme. This programme applied the much-needed focus on quality of housing – however, it was identified that the provision of just housing was not enough. At this point, government began to propose the concept of sustainable human settlements rather than just housing or shelter – as informed by the 11th United Nations Sustainable Development Goal: "Make cities and human settlements inclusive, safe, resilient, and sustainable" (UN 2015). It is clear from the above that government has the right intention as they have moved from the provision of basic and simple housing to sustainable human settlements and communities. It is therefore my contention that, while the policies and plans of government are in place, the key issue lies with the implementation process.

As already identified, the Cornubia Integrated Human Settlements Project was a bold project which aimed to create a "city within a city", where sustainable housing would be provided that included necessary services, facilities, and opportunities. This vision was successfully conceptualised in the planning process; however, there was a shortfall in the delivery and provision of the mentioned services and facilities. For example, residents were made aware of the provision of educational and health facilities. However, there were flaws in the implementation process of these facilities – forcing residents to travel rather far distances to gain access to existing facilities.

When looking at the project as a whole, it is clear that the major shortfalls experienced were dealing with educational and health care facilities. This statement is also aligned to the views expressed by the Public Sector Housing branch of the eThekwini Municipality.

It is therefore recommended that the implementation process needs to be revised: the provision of housing and its supporting facilities needs to occur simultaneously to ensure the development of a harmonious environment. As we have learned from the growth pole theory, development is more likely to occur

around a successful “pole”, as this will attract development and opportunities, essentially creating a new node.

It is additionally recommended that interdepartmental planning needs to highlight and place more emphasis on the role of all relevant supporting departments that assist in servicing the development. More extensive and better coordination and communication is needed to ensure that service delivery is carried out in a timely manner and that the shortfalls in respect of the provision of educational and health care facilities as experienced by the Cornubia project do not happen again. There also needs to be integration, coordination, and cooperation between all three spheres of government to ensure that all operations flow smoothly, as each sphere has a key role in the process (Mvuyana and Nzimakwe 2022).

This recommendation is supplemented by research conducted by Mvuyana and Nzimakwe (2022), who investigated the concept of such megaprojects in the context of the eThekwini municipality. The authors explain that an integrated human settlement should aim at ensuring the strategic provision of social facilities and services. In response to this, several developments which were aligned to the guidelines stipulated by the Breaking New Ground Policy were identified for the relocation of individuals in need. It is vital to produce an appropriate framework to support the operation of an efficient, effective, and transparent planning system.

Mvuyana and Nzimakwe (2022) state that the proposed framework needs to make provisions for problems with socio-economic factors, job opportunities, adequate education, and a stable income, as this would contribute towards satisfying the needs of residents. Additionally, the private sector plays a key role, which should be clearly stipulated in such housing developments; and limits should be enforced by the government to avoid issues of corruption (Mvuyana and Nzimakwe 2022).

6.2.2. Settlement design and layout

There are several components that are involved in the provision of sustainable human settlements. It is important that each component be assessed and executed strategically. In terms of the overall design and layout of the settlement, each component needs to be strategically located to ensure that it makes good town planning sense.

The results obtained from the survey of household characteristics and physical features were used to analyse the overall settlement design and layout of the Cornubia settlement. The Cornubia development has been a step in the right direction with regard to the intention of creating a sustainable integrated human settlement – rather than simply houses. However, the study has identified several flaws with the design and layout.

The size of the subsidised dwelling units is relatively small (50m^2). Residents stated that these houses barely have enough room for the whole family, let alone their belongings. Also, it should be noted that it is inevitable that families are going to grow as residents move forward with their lives and began introducing new additions to their family. Residents have concerns as to how these small houses are going to accommodate this growth. In this sense, the development has failed to fulfil the envisioned requirements and expectations of residents. Several residents have taken the initiative to make additions and alterations to the houses – such as building extensions and upgrading of internal infrastructure. Some residents have even erected carports in the open space available on their properties. These actions show signs of residents attempting to adapt and create an environment most suitable of them. However, it should be noted that not all residents have the capacity and resources to do the same – therefore they remain behind.

Another key issue is the provision of retail facilities. The Cornubia Mall was built with the intention of servicing the relocated residents. However, the study has shown that many residents are reluctant to adapt and make use of this facility. The results obtained from this study have identified that the Cornubia Mall has not met the satisfaction levels of the residents, in the sense that they prefer utilising smaller shops within the community – such as tuckshops and spaza shops as these are much more convenient. Respondents informed the researcher that it is a long walk from their homes to the mall. It is recommended that smaller shopping malls or centres be developed within the residential area of the development – one that will provide a few essential shops which will create a more welcoming environment for residents.

This leads to the matter of transportation, and in particular public transportation. Taxis are the primary mode of transportation used by the community. However, several respondents stated that the taxi routes are not close to their houses; instead, there is a pickup point which is a relatively far walk for residents. This point was informed further by the representative of the Public Sector Housing

department, who stated that a road network was specially designed for the settlement, and that internal roads were designed to provide direct residential access. It is therefore recommended that the private transport industry (specifically the taxi industry) need to get involved, in the sense that they need to engage with the municipality to assist in smoother access to transportation. Additional attention needs to be placed on each and every component that has been discussed to ensure that it makes good town planning sense.

The Cornubia Integrated Human Settlements Project is most definitely an extraordinary development, which has indeed been of great assistance in eradicating some of the current housing backlog on a fairly large scale. The uniqueness of this project should be highlighted, particularly as replicating such a large and ambitious project may be difficult, especially also in view of the massive time frames of such projects. For this reason, an alternative approach has been suggested, which has also been proposed and supported by Mvuyana and Nzimakwe (2022) and (Mvuyana 2019). The recommendation is that future initiatives consider the development of smaller social housing estates which are evenly distributed throughout and across urban areas. This will assist in deconcentrating social housing estates. Such smaller projects could reduce the risk separation from family and friends, and the increased distance and cost of traveling to places of work.

6.2.3. Community awareness and inclusion

A main concern within the development is public participation and community interaction. Many residents were not aware of the services and facilities made available within the development. During interviews, respondents were asked to comment on the availability of open spaces and recreational facilities within the community, and many informed the researchers that these facilities were not provided. However, upon further observation, these facilities were identified within close proximity to the units in question. With regard to this issue, the recommendation is that measures need to be taken during the implementation phase and after the projection has reached completion, to ensure that residents are clearly informed – such as regular community meetings, posters and notices within the community, and on social media groups.

As previously mentioned, several respondents reported their dissatisfaction with safety and security in the community. Unfortunately, crime is not something

that can be easily controlled or stopped. It is however recommended that the community members be encouraged to interact and to form a neighbourhood watch to assist with this issue. This approach will promote the involvement of community members in the management of their own development, thus supplementing developmental plans and proposals with this additional information. This will allow community members to feel included, allow them to create communities according to their, and it allows of the creation of economic opportunities of the residents.

The results gathered from this research study have shown that a great number of respondents responded neutral for the majority of the questions, with these respondents mentioning that they were grateful and thankful for whatever they were given. Residential satisfaction is greatly impacted by emotion, the feeling of belonging and inclusion. When describing the Cornubia development, the word bold is often used. The project was indeed risk as it relocated residents a great distance from their existing residence. Also, the Cornubia development is located adjacent to Umhlanga which is known for a higher and more elite lifestyle – so bring residents from a lower background was a risk in terms of their adjusting to the surrounding lifestyle and achieving a feeling of belonging. It is important understand that the above-mentioned issues should not be misconstrued as ungratefulness for the opportunities provided. Rather the plea is that authorities should assist with the identified issues in order to successfully develop a sustainable and comfortable environment in which the residents can thrive.

6.3. Conclusion

To conclude, the eThekwini Municipality has evolved in the right direction, in terms of housing policy and development – from poor quality housing to the provision of sustainable human settlements. It is important to understand that the quality of housing still needs to be improved considerably; it is, however, going in the correct direction. Public awareness and inclusion still need to be given more attention as not many residents were fully aware of their surroundings. The lessons learned from the relocation project reveal that the formulation and implementation of future projects need to have a more holistic and integrated approach, with more emphasis placed on the location, and with more assistance to residents in accomplishing the transition.

REFERENCES

Abdi, H. 2007. Multiple correlation coefficient. Encyclopedia of measurement and statistics, 648: 651.

Abidin, N. Z., Abdullah, M. I., Basrah, N. and Alias, M. N. 2019. Residential satisfaction: Literature review and a conceptual framework. In: Proceedings of IOP Conference Series: Earth and Environmental Science. IOP Publishing, 012040.

Aigbavboa, C. 2014. An integrated beneficiary centred satisfaction model for publicly funded housing schemes in South Africa. PhD Thesis, University of Johannesburg, Johannesburg, South Africa.

Alliance, C. 2006. Cities Alliance for Cities Without Slums: Action plan for moving slum upgrading to scale. World Bank: Washington DC.

Allmark, P. and Machaczek, K. 2018. Realism and Pragmatism in a mixed methods study. Journal of advanced nursing, 74 (6): 1301-1309.

Amérigo, M. A. and Aragones, J. I. 1997. A theoretical and methodological approach to the study of residential satisfaction. Journal of Environmental Psychology, 17 (1): 47-57.

Asumadu-Sarkodie, S. 2012. Nutritional Problems and Intervention Strategies in India. SA Sarkodie Publications, 3 (2).

Atkinson, R. D. 1998. Technological change and cities. Cityscape, Volume 3, no 3. pp 129-170. USA: US Department of Housing and Development.

Bazeley, P. and Jackson, K. 2013. Qualitative data analysis with NVivo. UK: SAGE publications limited.

Bhatt, M. R. 2003. The Case of Ahmedabad, India. Understanding Slums: Case Studies for the Global Report on Human Settlements. India: UN-Habitat. Available: http://www.ucl.ac.uk/dpu-projects/Global_Report/pdfs/Ahmedabad_bw.pdf (Accessed 29 December 2022)

Buchholz, K. 2020. How has the world's urban population changed from 1950 to today? Available: https://www.weforum.org/agenda/2020/11/global-continent-urban-population-urbanisation-percent/.

Burin, M. and Park, A. 2018. What's it like to live in our fastest-growing suburb? ABC News Story Lab. Available: https://www.abc.net.au/news/2018-10-16/what-its-like-to-live-in-australias-fastest-growing-suburb/10343110?nw=0 (Accessed 08 January 2021).

Buys, L. and Miller, E. 2012. Residential satisfaction in inner urban higher-density Brisbane, Australia: role of dwelling design, neighbourhood and neighbours. Journal of Environmental Planning and Management, 55 (3): 319-338.

Chen, N. C., Hall, C. M., Yu, K. and Qian, C. 2019. Environmental satisfaction, residential satisfaction, and place attachment: The cases of long-term residents in rural and urban areas in China. Sustainability, 11 (22): 6439.

Christaller, W. 1933. Die zentralen Orte in Süddeutschland. Jena: Fischer.

Cirolia, L. R., Görgens, T., Van Donk, M., Smit, W. and Drimie, S. 2017. Upgrading informal settlements in South Africa: Pursuing a partnership-based approach. Juta and Company (Pty) Ltd.

Constantin, D.-L. and Radu, L. N. 2019. Romania's Growth Poles Policy and The Eu Funding: Retrospects and Prospects. Journal of Academic Research in Economics, 11 (2).

Cooke, H.L., 2014. Exploration into knowledge production in spatial planning: the Cornubia Housing Project, eThekwini Municipality, South Africa. Masters Degree, Durban University of Technology. Available: http://hdl.handle.net/10413/14124 (29 December 2022).

Creswell, J. W. and Clark, V. L. P. 2017. Designing and conducting mixed methods research. 3rd ed. Los Angeles: Sage Publications.

CSIR. (2015). Guidelines for the provision of Social Facilities in South African settlements. Council for Scientific and Industrial Research (CSIR). South Africa

Data Reportal. 2021. DIGITAL 2021: INDIA 11-02-2021 ed. Available: https://datareportal.com/reports/digital-2021-india (Accessed 15 August 2022).

Davoodi, T. and Dağlı, U. U. 2019. Exploring the determinants of residential satisfaction in historic urban quarters: Towards sustainability of the Walled City Famagusta, North Cyprus. Sustainability, 11 (22): 6261.

Dawkins, C. J. 2003. Regional development theory: conceptual foundations, classic works, and recent developments. Journal of Planning Literature, 18 (2): 131-172.

Del Mistro, R. and A. Hensher, D. 2009. Upgrading informal settlements in South Africa: Policy, rhetoric and what residents really value. Housing Studies, 24 (3): 333-354.

Department of Human Settlements. 2009. Incremental interventions: Integrated Residential Development Programme. South Africa Available:

http://www.dhs.gov.za/content/integrated-residential-development-programme-irdp (Accessed 08 July 2020).

Dollah, S., Abduh, A. and Rosmaladewi, M., 2017, Benefits and drawbacks of NVivo QSR application. In 2nd International Conference on Education, Science, and Technology (ICEST 2017), 149: 61-63

Domènech, J. M. and Salmeron, A. M. 2019. Young adults in the 21st century, a different approach to life? Available: https://www.caixabankresearch .com/en/economics-markets/labour-market-demographics/young-adults-21st-century-different-approach-life (Accessed 23 June 2022).

Dow, S. C. 2012. Methodological Pluralism and Pluralism of Method. In: Dow, S. C. (ed.), Foundations for New Economic Thinking: A Collection of Essays. London: Palgrave Macmillan UK, 129-139. Available: https://doi.org/10.1057/9781137000729_8 (Accessed 25 November 2022).

Emami, A. and Sadeghlou, S. 2020. Residential Satisfaction: A narrative literature review towards identification of core determinants and indicators. Housing, Theory and Society: 1-29.

Enosh, N., Leslau, A. and Shacham, J. 1984. Residential quality assessment: a conceptual model and empirical test. Social Indicators Research, 14 (4): 453-476.

eThekwini Municipality. 2020-2021. Integrated Development Plan (IDP). Durban eThekwini Municipality, Available: https://www.cogta.gov.za/cgta _2016/wp-content/uploads/2021/02/Final-eThekwini-Plain-English-2020_21-IDP.pdf (Accessed 25 August 2022).

Fernandes, E. and Varley, A. 1998. Law, the city and citizenship in developing countries: an introduction. London: Zed Books

Festinger, L. 1954. A Theory of Social Comparison Processes. Human Relations, 7 (2): 117-140.

Festinger, L. 1957. A theory of cognitive dissonance. California: Stanford University Press.

Flyvbjerg, B. 2006. Five misunderstandings about case-study research. Qualitative inquiry, 12 (2): 219-245.

Forster, C. 2006. The challenge of change: Australian cities and urban planning in the new millennium. Geographical research, 44 (2): 173-182.

Francescato, G., Weidemann, S., Anderson, J. and Chenoweth, R. 1974. Evaluating residents' satisfaction in housing for low and moderate income

families: A multi-method approach. Man-environment interactions: Evaluation and applications, 5: 285-296.

Franklin, S. 2011. Enabled to work? The impact of housing subsidies on slum dwellers in South Africa. Unpublished Manuscript. Oxford Institute for Global Economic Development.

Galster, G. C. 1985. Evaluating indicators for housing policy: Residential satisfaction vs marginal improvement priorities. Social Indicators Research, 16 (4): 415-448.

Gohil, J. and Gandhi, Z. H. 2019. Pradhan Mantri Awas Yojana (PMAY) Scheme—an emerging prospect of affordable housing in India. Int Res J Eng Technol, 6 (12): 2546-2550.

Google Maps. 2022a. Australia. Available: https://www.google.co.za/maps/place/Australia/@-21.1895625,95.4746877, 3z/data=!3m1!4b1!4m5!3m4!1s0x2b2bfd076787c5df:0x538267a1955b1352!8m2!3d-25.274398!4d133.775136 (Accessed 26 November 2022).

Google Maps. 2022b. Cornubia. Available: https://www.google.co.za/maps/search/cornubia/@-29.688827,31.0299724, 1665m/data=!3m1!1e3 (Accessed 26 November 2022).

Google Maps. 2022c. Durban. Available: https://www.google.co.za/maps/place/Durban/@-29.8683711,30.8261355,37607m/data=!3m2!1e3!4b1!4m5!3m4!1s0x1ef7aa0001bc61b7:0xcca75546c4aa6e81!8m2!3d-29.8586804!4d31.0218404 (Accessed 26 November 2022).

Google Maps. 2022d. India. Available: https://www.google.co.za/maps/place/India/@-26.0273357,115.9355522,4.29z/data=!4m5!3m4!1s0x30635ff06b92b791:0xd78c4fa1854213a6!8m2!3d20.593684!4d78.96288 (Accessed 26 November 2022).

Gorter, C. and Nijkamp, P. 2001. Location Theory. In: Smelser, N. J. and Baltes, P. B. (eds). International Encyclopedia of the Social & Behavioral Sciences. Oxford: Pergamon, 9013-9019. Available: http://www.sciencedirect.com/science/article/pii/B0080430767024906 (Accessed 26 October 2022).

Govender, S. 2020. Angry Durban community burns tyres in protest against unsafe crossing for children. Sunday Times Available: https://www.timeslive.co.za/news/south-africa/2020-03-11-angry-durban-community-burns-tyres-in-protest-against-unsafe-crossing-for-children/ (Accessed 15 March 2020).

Greyling, C. 2010. The RDP housing system in South Africa. Thesis (BSc. (Hons) Quantity Surveying, University of Pretoria. Available: http://hdl.handle.net/2263/14433 (Accessed 28 December 2022).

Henderson, V., Squires, T., Storeygard, A. and Weil, D. 2017. On the spatial distribution of development. The role of nature and history. The Long Economic and Political Shadow of History, 1: 7-17.

Henilane, I., 2016. Housing concept and analysis of housing classification. *Baltic Journal of Real Estate Economics and Construction Management*, *4*(1), pp.168-179.

Herzberg, F., Mausner, B. and Snyderman, B. B. 1959. The Motivation to Work. New York: John Wiley and Sons, Inc.

Hofmann, P., Strobl, J., Blaschke, T., Kux, H. (2008). Detecting informal settlements from QuickBird data in Rio de Janeiro using an object based approach. In: Blaschke, T., Lang, S., Hay, G.J. (eds) Object-Based Image Analysis. Lecture Notes in Geoinformation and Cartography. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-77058-9_29

Hourihan, K. 1984. Context-dependent models of residential satisfaction: An analysis of housing groups in Cork, Ireland. Environment and behavior, 16 (3): 369-393.

Hox, J. J. and Boeije, H. R. 2005. Encyclopedia of social measurement: Data collection, primary versus secondary. (Vol. 1, pp. 593–599). Netherlands: Elsevier. Available: http://www.joophox.net/publist/ESM_DCOL05.pdf (Accessed 25 November 2022).

Huchzermeyer, M. 2001. Housing for the poor? Negotiated housing policy in South Africa. Habitat international, 25 (3): 303-331.

Huchzermeyer, M. 2011. Cities With 'Slums': From Slum Eradication to a Right to the City in Africa. Cape Town: Juta/UCT Press.

Iyer Urban Design Studio. 2011. Cornubia Framework Plan: Presentation to ECOD Durban: IYER

Iyer, K. G. A. N. 2014. Cornubia - Phase 2 Planning Report. Durban: Prepared for Tongaat Hulett Developments and eThekwini Municipality

Johnson, R., Christensen, L. and Turner, L. 2014. Research methods, design and analysis: Saddle River, NJ: Pearson.

Jordan, M. K. 2020. Evaluating the accomplishment of social sustainability as a planning principle: the case of Cornubia housing project. Master's degree, University of KwaZulu-Natal.

Joshi, R. 2014. Mobility practices of the urban poor in Ahmedabad (India). Doctoral Thesis, University of the West of England.

Kasarda, J. D. and Crenshaw, E. M. 1991. Third world urbanization: Dimensions, theories, and determinants. Annual Review of Sociology, 17 (1): 467-501.

Khan Academy. 2021. What is urban growth? Available: https://www.khanacademy.org/test-prep/mcat/society-and-culture/demographics/a/what-is-urban-growth.

King, L.J. 1985. Central Place Theory. Reprint. USA: Research Institute, West Virginia University. Available: https://researchrepository.wvu.edu/cgi/viewcontent.cgi?article=1007&context=rri-web-book (Accessed 23 November 2022).

Klug, N., Rubin, M. and Todes, A. 2013. Inclusionary housing policy: a tool for re-shaping South Africa's spatial legacy? Journal of Housing and the Built Environment, 28 (4): 667-678.

Knight, A. and Ruddock, L. 2009. Advanced research methods in the built environment. John Wiley & Sons.

Kok, P. and Collinson, M. 2006. Migration and urbanisation in South Africa. Statistics South Africa. Available: https://www.researchgate.net/publication/236144246_Migration_and_urbanization_in_South_Africa.

Koll-Schretzenmayr, M. 1999. From Greenfield Development to Brownfield Redevelopment: New challenges for planning process, planning strategies and planning law. DISP, 35(139): 43-48. DOI:10.1080/02513625.1999.10556724

Kumar, R. 2018. Research methodology: A step-by-step guide for beginners. London: Sage.

Leedy, P. D. and Ormrod, J. E. 2014. Practical research: Planning and design. Boston, MA: Pearson Education.

Losch, A., 1954. Economics of location. New Haven: Yale University Press.

Lukhele, T. 2014. Mixed-income housing, urban transformation and social cohesion in post-apartheid South Africa. Mediterranean Journal of Social Sciences, 5 (25): 36-36.

Magubane, L. 2016. Evaluating the socio-economic impact of relocating residents from informal settlements with the purpose of creating sustainable human settlements, Case Study of Philani Valley, uMlazi. Masters of Housing Degree. University of KwaZulu Natal. Available: https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/14164/Magubane_Lethukuthula_2016.pdf?sequence=1&isAllowed=y (Accessed 12 March 2021).

Magubane, T. 2020. Department of Human Settlements concerned over 'illegal' sales of government houses. Available: https://www.iol.co.za/news/south-africa/kwazulu-natal/department-of-human-settlements-concerned-over-illegal-sales-of-government-houses-46677130 (Accessed 30 May 2020).

Mahadevia, D., Desai, R., Sanghvi, S., Vyas, S. and Parmar, V. 2017. Relocation of Slum Dwellers Far Away from Present Habitats Reduces Effective Income. CEPT: Ahmedabad. Available: https://www.sabrangindia.in/article/relocation-slum-dwellers-far-away-present-habitats-reduces-effective-income-ahmedabad-cept (Accessed 13 February 2022)

Mahmood, S. W., Seyala, N. N. and Algamal, Z. Y. 2020. Adjusted R2-type measures for beta regression model. Electronic Journal of Applied Statistical Analysis, 13 (2): 350-357.

Majola, N. 2020. eThekwini Municipality says it is considering erecting a temporary steel pedestrian bridge on the R102. Available: https://www.groundup.org.za/article/we-are-tired-people-dying-we-are-tired-empty-promises-says-cornubia-resident/ (Accessed 30 May 2020).

Makkar, K. K. 2017. IELTS Academic Essays from the Past Exams. Chandigarh: makkerIELTS.

Manomano, T. 2013. The perceptions of the Reconstruction and Development Programme (RDP) Housing beneficiaries in South Africa on the extent to which the project meet their housing needs. The case of Golf Course Estate in Alice Town, Eastern Cape Province. Master of Social Work, University of Fort Hare. Available: https://core.ac.uk/download/pdf/145043316.pdf (Accessed 14 January 2022).

Marans, R. W. and Rodgers, W. 1975. Toward an understanding of community satisfaction. Metropolitan America in contemporary perspective: 299-352.

Marshall, F., Waldman, L., MacGregor, H., Mehta, L. and Randhawa, P. 2009. On the edge of sustainability: perspectives on peri-urban dynamics. Brighton: STEPS Centre. Available: https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/2461 (Accessed 5 January 2022).

Maslow, A. H. 1943. A theory of human motivation. Psychological review, 50 (4): 370.

Mbhele, B. T. 1998. Housing choice and satisfaction: a case of Summerfields residential area. Masters of Town and Regional Planning. University of KwaZulu Natal. Available: https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/2506/Mbhele_Bongumusa_T_1998.pdf?sequence=1&isAllowed=y (Accessed 12 March 2021).

Melnikas, B. 1998. Management and modernization of housing facilites: specific features of central and eastern European countries. Facilities.

Michelson, W. and Michelson, W. M. 1977. Environmental choice, human behavior, and residential satisfaction. USA: Oxford University Press.

Mittlböck, M. and Schemper, M., 1996. Explained variation for logistic regression. Statistics in medicine, 15(19), pp.1987-1997.

Mohanty, P. K. 2019. Planning and economics of cities: Shaping India's form and future. India: SAGE Publications.

Mohit, M. A. and Raja, A. M. M. A.-K. 2014. Residential satisfaction-concept, theories and empirical studies. Planning Malaysia, 12 (3).

Momtaz, S. A., Rafieian, M. and Aghasafari, A. 2016. Residential satisfaction of low income housing projects (Case study: housing Mehregan settlements). International Journal of Humanities and Cultural Studies (IJHCS) ISSN 2356-5926: 1491-1503.

Morrill, R. L. 1963. The development of spatial distributions of towns in SWEDEN: An historical-predictive approach. Annals of the Association of American Geographers, 53 (1): 1-14.

Morris, E. W. and Winter, M. 1975. A theory of family housing adjustment. Journal of Marriage and the Family: 79-88.

Msibi, M. 2014. Cornubia: The pride, joy of 482 home owners. Available: http://www.durban.gov.za/Resource_Centre/new2/Pages/Cornubia-The-pride,-joy-of-482-home-owners.aspx (Accessed 20 February 2020).

Mvuyana, B. Y. and Nzimakwe, T. I. 2022. Megaprojects as a vehicle for providing benefits to housing beneficiaries in the eThekwini municipality. Journal of Local Government Research and Innovation, 3: 8.

Mvuyana, B. Y. C. 2019. An assessment of sustainable human settlement strategy in creating a quality living environment: a case of eThekwini Municipality. Doctoral Thesis, University of KwaZulu-Natal. Durban: University

of KwaZulu-Natal. Available: https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/17835/Mvuyana_Bongekile_Yvone_2019.pdf?sequence=1&isAllowed=y (Accessed 30 May 2021).

Mzolo, N. P. 2016. Evaluating the implementation process of the Cornubia Housing Programme (Phase 1 A) in the eThekwini Municipality. Master Degree. Stellenbosch: Stellenbosch University. Available: http://scholar.sun.ac.za/handle/10019.1/98538 (Accessed 24 June 2022).

Naoum, S. 2012. Dissertation research and writing for construction students. United Kingdom: Routledge.

Nassar, D. M. and Elsayed, H. G. 2018. From informal settlements to sustainable communities. Alexandria Engineering Journal, 57 (4): 2367-2376.

Ndlovu, C. 2013. Cornubia Relocations Started Today. Available: http://www.durban.gov.za/Resource_Centre/Press_Releases/Pages/Cornubia-Relocations-Started-Today.aspx (Accessed 20 February 2020).

Ngema, T. and Dawood, Z. 2020. PICS: Cornubia community goes on rampage, demands pedestrian bridge after another pupil hit by car. Available: https://www.iol.co.za/dailynews/news/kwazulu-natal/pics-cornubia-community-goes-on-rampage-demands-pedestrian-bridge-after-another-pupil-hit-by-car-44575569 (Accessed 30 May 2020).

Nokulunga, M., Didi, T. and Clinton, A. 2018. Challenges of Reconstruction and Development Program (RDP) Houses in South Africa. In: Proceedings of the International Conference on Industrial Engineering and Operations Management. 27-29.

Noor, K. B. M. 2008. Case study: A strategic research methodology. American Journal of Applied Sciences, 5 (11): 1602-1604.

Ntema, J., Massey, R., Marais, L., Cloete, J. and Lenka, M. 2018. Informal settlement upgrading in South Africa: beneficiaries' perceptions over nearly twenty-five years. Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 11 (4): 460-479.

Nxumalo, M. 2019. eThekwini's new housing plan slammed for being 'pie in the sky'. IOL Available: https://www.iol.co.za/dailynews/news/kwazulu-natal/ethekwinis-new-housing-plan-slammed-for-being-pie-in-the-sky-21472087 (Accessed 15 March 2020).

OECD/European Commission, 2020*. A new perspective on urbanisation*, OECD Urban Studies, OECD Publishing, Paris

Ogu, V. 2002. Urban residential satisfaction and the planning implications in a developing world context: The example of Benin City, Nigeria. International planning studies, 7 (1): 37-53.

Ogunsanya, L. B. 2009. A comparative study of social housing developments: Greenfield developments and converted/refurbished buildings. Master Degree. University of KwaZulu Natal. Available: https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/73/Ogunsanya%20thesis%202009.pdf?sequence=3&isAllowed=y (Accessed 5 June 2022).

O'Kelly, M. and Bryan, D., 1996. Agricultural location theory: von Thunen's contribution to economic geography. *Progress in Human geography*, *20*(4), pp.457-475.

Okeyinka, Y. 2014. Housing in the thrid world cities nd sustainable urban developments. Developing Country Studies. ISSN, pp. 2225-0565.

O'Neill, A. 2021. India: Degree of urbanization from 2010 to 2020. Statista. Available: https://www.statista.com/statistics/271312/urbanization-in-india/ (Accessed 2 May 2022)

Onibokun, A. G. 1974. Evaluating consumers' satisfaction with housing: an application of a systems approach. Journal of the American Institute of Planners, 40 (3): 189-200.

Patton, M.Q., 1987. *How to use qualitative methods in evaluation* (No. 4). Sage.

Reeves, P. F. 2005. An Introduction to Social Housing. London: Routledge.

Republic of South Africa (RSA). 2013. Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA). Pretoria: Government Printer.

Rossi, P. H. 1955. Why families move: A study in the social psychology of urban residential mobility. Cambridge: Free Press.

Ruiz, J. M. D. 2017. Invisible practices within visible spaces: exploring manifestations of collective life towards the design of co-operative living model in Cornubia, Durban. Masters Degree. University of KwaZulu Natal. Available: http://hdl.handle.net/10413/15354 (Accessed 30 May 2022).

Ruonavaara, H. 2018. Theory of housing, from housing, about housing. Housing, Theory and Society 35(2), pp. 178-192. UK: Oxford University Press.

Sajan, J. 2016. Residential Satisfaction in Medium Density Apartment Housing in Sydney: A Case Study of Fairfield. Doctor of Philosophy Ph.D. thesis. University of Sydney. Available: http://hdl.handle.net/2123/16057 (Accessed 3 August 2022).

Salbiyah, S., Kes, M., Fitri Nuraini, S., Ak, M. and Asyidatur Rosmaniar, S. 2019. Motivation and its effect on women's lecturer performance In University of Muhammadiyah Surabaya. SSRG International Journal of Economics and Management Studies (IJEMS), 6 (09): 48-55.

Satsangi, M. and Kearns, A. 1992. The use and interpretation of tenant satisfaction surveys in British social housing. Environment and Planning C: Government and Policy, 10 (3): 317-331.

Shange, N. T. 2018. Exploring the housing allocation policy for subsidised housing for low-income beneficiaries in South African cities: a case study of eThekwini Municipality, KwaZulu-Natal, South Africa. Masters Degree. University of KwaZulu Natal. Available: https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/18542/Shange_Nkanyiso_Thobani_2018.pdf?sequence=1&isAllowed=y (Accessed 5 September 2021).

Singh, S. S. 2019. An evaluation of the Integrated Residential Development Programme (IRDP) as a strategy of spatial integration of low-income housing project: a study of Cornubia, Durban, South Africa. Masters Degree. University of KwaZulu Natal. Available: https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/19169/Singh_Shaheel_Sunil_2020.pdf?sequence=1&isAllowed=y (Accessed 5 September 2021).

Siqhwala, L. 2002. The impact of relocation of informal settlement communities into new greenfields housing projects in the eThekwini municipal area. Master's degree, University of KwaZulu-Natal. Available at: https://www.semanticscholar.org /paper/The-impact-of-relocation-of-informal-settlement-new-Siqhwala/e07ff917 600167106acc8231a8115a0db6a18928.

Skrepnek, G. H. 2005. Regression methods in the empiric analysis of health care data. Journal of Managed Care Pharmacy, 11 (3): 240-251.

South Africa, Department of Human Settlements. 2014. Cornubia: Celebrating 20 Years of Building Dreams. Pretoria: Communication Services Available: http://www.dhs.gov.za/sites/default/files/documents/Cornubia%20Project%20Booklet%202014.pdf (Accessed 17 March 2021).

South Africa. 2044. Breaking New Ground Policy. Pretoria: Government Gazette.

Srinivas, H. 2005. Defining squatter settlements. Global Development Research Center Web site, www. gdrc. org/uem/define-squatter. html.

St, L. and Wold, S. 1989. Analysis of variance (ANOVA). Chemometrics and intelligent laboratory systems, 6 (4): 259-272.

Stroud, C., Walker, L. R., Davis, M. and Irwin Jr, C. E. 2015. Investing in the health and well-being of young adults. Journal of Adolescent Health, 56 (2): 127-129.

Sutherland, C., Sim, V. and Scott, D. 2015. Contested discourses of a mixed-use megaproject: Cornubia, Durban. Habitat international, 45: 185-195.

Tan, T. H. 2016. Residential satisfaction in gated communities: Case study of desa park city, Kuala Lumpur, Malaysia, Property Management, Vol. 34 No. 2, pp. 84-99. Available: https://doi.org/10.1108/PM-02-2015-0009 (Accessed 4 October 2021).

Thet, K. K. 2012. Pull and push factors of migration: A case study in the urban Area of Monywa Township, Myanmar. International Conference on Entrepreneurial Competencies in a Changing World (ECCW 2020), SHS Web of Conferences 90, 01023 (2021). Available: https://www.worldofstatistics.org/files/2014/03/Pull-and-Push-Factors-of-Migration-Thet.pdf (Accessed 6 May 2022).

UN-Habitat. 2004. The challenge of slums: global report on human settlements 2003. Management of Environmental Quality: An International Journal, 15 (3): 337-338.

United Nations (UN). 2015. Transforming our world: the 2030 agenda for sustaining our development. Geneva and New York: United Nations.

Wang, D. and Wang, F. 2016. Contributions of the usage and affective experience of the residential environment to residential satisfaction. Housing Studies, 31 (1): 42-60.

Webber, M.J., 1985. Industrial location. *Wholbk*.

Wegner, T. 2010. Applied business statistics: Methods and Excel-based applications. South Africa: Juta and Company Ltd.

Williams, D. C. 2012. Global urban growth: A reference handbook. Santa Barbara, Calif: ABC-CLIO.

Wisker, G. 2007. The postgraduate research handbook: Succeed with your MA, MPhil, EdD and PhD. University of Brighton, UK: Macmillan International Higher Education.

Ziblim, A., Sumeghy, M. G. and Cartwright, A. 2013. The dynamics of informal settlements upgrading in South Africa. Habitat international, 37: 316-334.

ANNEXURE A: SEMI-STRUCTURED INTERVIEWS

1. The Cornubia development is a bold, multi-billion-rand project, which is vigorously pursuing the goal of becoming the most liveable city in Africa by 2030. What are your views on this venture?

2. The eThekwini Municipality plans to eradicate approximately 40 years of housing backlog, through a combination of expropriating land and acquiring it through amicable agreements (Nxumalo 2019). What are your views on this goal and method?

3. With regard to economic opportunities, the project aims to create approximately 15 000 construction job opportunities and 48 000 permanent job opportunities. What is your opinion on this statement?

4. This mass project aims to achieve an integrated human settlement and to increase district integration. What impact will the development have on the surrounding area, in terms of property value, environmental impact, pollution, and traffic constraints?

5. The Cornubia development introduces low-income housing in an area of medium-high income housing. In your opinion, do you think relocated dwellers will be able to adapt to this change in environment?

6. There have been several news reports which speak of illegal activities relating to the allocation and “sale” of subsidised housing. What is your opinion and recommendation regarding this issue?

7. Angry and concerned residents of the settlement are demanding that a pedestrian bridge be installed over a busy highway after two children were run over while making their way to school (Govender 2020). With regard to this, what is your opinion on the delivery of infrastructure within the area?

8. One the key objectives of the Cornubia development is to ensure sustainability by establishing a framework, delivery and management system that embraces all aspects of human settlements. In your opinion, has this objective been achieved?

9. In your opinion, what impact has the development had on the economic and managerial sector? (Employment opportunities, Transportation, Educational facilities.)

10. In the context of the Covid-19 pandemic in South Africa, what impact do you think this will have on the Cornubia development?

ANNEXURE B: STRUCTURED QUESTIONNAIRES

Researcher: _____

Date: _____

Time: _____

Residential Satisfaction in The Cornubia Development Project

Dear Participant

I am a registered student at the Durban University of Technology in the Department of Town and Regional Planning. I am currently pursuing my Master of the Built Environment (MBE) in the Faculty of Engineering and the Built Environment.

My research title: **Residential satisfaction of informal settlement dwellers relocated to integrated human settlements - The case of Cornubia.**

Aim of my study: To establish the impact that relocation has on the residential satisfaction levels of informal dwellers which influences the overall success rate of the greenfield housing project, the Cornubia Integrated Human Settlements Project.

The questionnaire should take about 20 minutes to complete. Your participation is voluntary, and you are at liberty to withdraw from answering this questionnaire at any time. Please note that your responses and identity will be kept completely confidential.

Your participation to this study will be highly appreciated. If there are any queries, please feel free to contact me (contact details below).

Sincerely

S. Gangapersad

_____

Ms Sandhya Gangapersad

sandhyagangapersad@gmail.com

0844 637 7017

G.G. Musvoto

_____

Supervisor: Dr Godfrey G Musvoto

godfreym@dut.ac.za

031 373 2665 / 079 258 8881

Section A: Interviewee Information / Personal details

INSTRUCTIONS TO RESPONDENTS:

1. Please select ONLY ONE response with an **"X"** for each question.
2. Please DO NOT leave any question blank.

A1. Area/Neighbour name/Street address

1	

A2. Gender

1	Male	
2	Female	

A3. Age group

1	≤ 10 years		7	36 – 40 years	
2	11 – 15 years		8	41 – 45 years	
3	16 – 20 years		9	46 – 50 years	
4	21 – 25 years		10	51 – 55 years	
5	26 – 30 years		11	56 – 60 years	
6	31 – 35 years		12	≥ 61	

A4. Race group

1	African/Black	
2	Indian	
3	Coloured	
4	White	
5	Other (Please specify)	

A5. Highest qualification

1	Below Grade 12/ Std 10	
2	Grade 12/ Std 10	
3	Diploma	
4	Degree	
5	B-Tech/ Honours	
6	Master's degree/ MBA	

7	Doctorate/ PhD, DBA	

Section B: Household characteristics

B1. How many years have you been staying in your current dwelling/house?

1	≤ 1 year	
2	2 – 3 years	
3	≥ 4 years	

B2. Where have you been staying before?

1	

B3. Describe the type of your household.

1	One person household	
2	Nuclear household	
3	Extended household	
4	Composite	
5	Other (Please specify)	

SIDE NOTES

One person household: One person makes provision for his or her own food and/or other essentials for living without combining with any other person to form part of a multi-person household.

Nuclear household: Family group consisting of two parents and their children (one or more).

Extended household: Extends beyond the nuclear family, consisting of parents, aunts, uncles, and cousins, all living in the same household.

Composite: Those that contain more than one family or several isolated persons, or any other combination of isolated persons and families.

B4. What is the gender of the household head?

1	Male	
2	Female	

B5. What is the population group of the household head?

1	African/Black	
2	Indian	
3	Coloured	
4	White	
5	Other (Please specify)	

B6. What is the age group of the household head?

1	≤ 10 years		7	36 – 40 years	
2	11 – 15 years		8	41 – 45 years	
3	16 – 20 years		9	46 – 50 years	
4	21 – 25 years		10	51 – 55 years	
5	26 – 30 years		11	56 – 60 years	
6	31 – 35 years		12	≥ 61	

B7. What is the main source of income within the household?

1	Government grants	
2	Formal employment	
3	Informal employment	
4	Entrepreneurs (Self-employed)	
5	Other (Please specify)	

B8. What is the estimated monthly income of the household head?

1	< R2000		6	R18 000 – R21 999	
2	R2000 – R5999		7	R22 000 – R25 999	
3	R6000 – R9999		8	R26 000 – R29 999	
4	R10 000 – R13 999		9	R 30 000 – R33 999	
5	R14 000 – R17 999		10	≥R34 000	

B9. What is the size of your household?

1	≤ 2 people	
2	3 – 4 people	
3	≥ 5 people	

B10. What are the age groups of the different household members? (You may select one or more answers)

	Age category (years)	**Option**
1	< 5	
2	5- 10	
3	11 – 16	
4	17 – 22	
5	23 – 28	
6	28 – 33	

7	34 – 39	
8	39 – 44	
9	45 – 50	
10	51 – 56	
11	57 – 63	
12	64– 69	
13	70+	

B11. How many household members are employed?

1	None	
2	1 – 2 people	
3	3 – 4 people	
4	≥ 5 people	

B12. Do you have household members that are unemployed?

1	Yes	
2	No	

B13. If the answer for Q B12 is yes, how many household members are looking for employment?

1	None	
2	1 – 2 people	
3	3 – 4 people	
4	≥ 5 people	

Section C: Minimum Housing Units (MHUs)

C1. How many household members are childless, unmarried adults?

1	None	
2	1 – 2 people	
3	3 – 4 people	
4	≥ 5 people	

C2. How many household members are lone parents with dependent parents?

1	None	
2	1 – 2 people	

3	3 – 4 people	
4	≥ 5 people	

C3. How many childless couples are in the household?

1	None	
2	1 – 2 couples	
3	3 – 4 couples	
4	≥ 5 couples	

C4. How many married couples with dependent children are in the household?

1	None	
2	1 – 2 couples	
3	3 – 4 couples	
4	≥ 5 couples	

C5. Which of the following describes the way MHUs in your household are likely to transform their current living standards into?

1	Living alone	
2	Living with parents	
3	Living with minor unmarried adults	

C6. For each of the questions below, select the response that best characterises how you feel about the statement, where: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree. ***(Please mark your answer with a "X")***

6.1	The likely household formation behaviour of young adults in the household is to leave parental home.	1	2	3	4	5
6.2	The likely household formation behaviour of young adults in the household is not leave parental home.	1	2	3	4	5
6.3	The likely household formation behaviour of young adults in the household is to get married and leave parental home.	1	2	3	4	5
6.4	The likely household formation behaviour of young adults in the household is to get married and stay in parental home.	1	2	3	4	5
6.5	The likely household formation behaviour of young adults in the household is to have children and stay in parental home.	1	2	3	4	5
6.6	The likely household formation behaviour of young adults in your household is to have children and leave parental home.	1	2	3	4	5
6.7	The likely household formation behaviour of young adults in your household if not married is to live alone	1	2	3	4	5
6.8	The likely household formation behaviour of young adults in your household if not married is to live with others	1	2	3	4	5

Section D: Factors influencing young adults' household formation behaviour

D1. For each of the questions below, select the response that best characterises how you feel about the statement, where: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree. ***(Please mark your answer with an "X")***

1.1	Income levels of young adults in the household are likely to influence their formation of a new household.	1	2	3	4	5
1.2	Change of kin numbers staying in the household is likely to influence young adults' formation of a new household.	1	2	3	4	5
1.3	Age/gender roles of young adults in the household are likely to influence their formation of a new household.	1	2	3	4	5
1.4	Quality of available services in the area is likely to influence young adults in the household form a new household.	1	2	3	4	5
1.5	Modern communication and transportation services are likely to influence young adults in the household form a new household.	1	2	3	4	5

D2. Are there any other reasons besides those mentioned above that might influence young adults in the household to form a new household?

……
……
……
……
……..

D3. Do you agree with young adults in your household continuing to stay in the household?

1	Strongly disagree	
2	Disagree	
3	Neutral	
4	Agree	
5	Strongly agree	

D4. For each of the questions below, select the response that best characterises how you feel about the statement, where: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree. ***(Please mark your answer with an "X")***

4.1	The low quality of life in the other available households is the reason young adults in the household continue to stay in this household.	1	2	3	4	5

4.2	Availability of employment opportunities in and around this area/place is the reason for young adults to continue staying in the household	1	2	3	4	5

D5. Are there any other reasons besides those mentioned above that might contribute to young adults continued stay in the household?

……
……
……
……
……..

Section E: Household/Dwelling unit features

E1. If you are currently employed, what is the distance from your dwelling to your place of work?

1	

E2. For each of the questions below, select the response that best characterises how you feel about the statement, where: 1 = Very dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, 5 = Very satisfied. ***(Please mark your answer with an "X")***

2.1	What is your level of satisfaction with your housing typology?	1	2	3	4	5
2.2	What is your level of satisfaction with the overall structural quality of the dwelling unit?	1	2	3	4	5
2.3	What is your level of satisfaction with the number of rooms within your dwelling unit?	1	2	3	4	5
2.4	What is your level of satisfaction with the size/condition/location of the bedrooms?	1	2	3	4	5
2.5	What is your level of satisfaction with the size/condition/location of the bathroom?	1	2	3	4	5
2.6	What is your level of satisfaction with the size/condition/location of the kitchen?	1	2	3	4	5
2.7	What is your level of satisfaction with the size/condition/location of the dining room?	1	2	3	4	5
2.8	What is your level of satisfaction with the size/condition/location of the living room?	1	2	3	4	5
2.9	What is your level of satisfaction with the size/condition/location of the garage?	1	2	3	4	5
2.10	What is your level of satisfaction with the size/condition/location of the yard space?	1	2	3	4	5
2.11	What is your level of satisfaction with the size/condition/location laundry room/area?	1	2	3	4	5
2.12	What is your level of satisfaction with the size/condition/location of the staircase?	1	2	3	4	5
2.13	What is your level of satisfaction with the overall size/condition/location of your dwelling unit?	1	2	3	4	5
2.14	What is your level of satisfaction with cooking facilities within the dwelling unit?	1	2	3	4	5
2.15	What is your level of satisfaction with sanitary facilities within the dwelling unit?	1	2	3	4	5
2.16	What is your level of satisfaction with washing facilities within the dwelling unit?	1	2	3	4	5
2.17	What is your level of satisfaction with the lighting within the dwelling unit?	1	2	3	4	5
2.18	What is your level of satisfaction with the ventilation system within the dwelling unit?	1	2	3	4	5
2.19	What is your level of satisfaction with the overall safety and security within your dwelling unit?	1	2	3	4	5

Section F: Dwelling unit support facilities

F1. For each of the questions below, select the response that best characterises how you feel about the statement, where: 1 = Very dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, 5 = Very satisfied. ***(Please mark your answer with an "X")***

1.1	What is your level of satisfaction with the water supply to your dwelling unit?	1	2	3	4	5
1.2	What is your level of satisfaction with the electricity supply to your dwelling unit?	1	2	3	4	5
1.3	What is your level of satisfaction with the plumbing/sewage facilities?	1	2	3	4	5
1.4	What is your level of satisfaction with the telecommunication facilities?	1	2	3	4	5
1.5	What is your level of satisfaction with the garbage collection services?	1	2	3	4	5
1.6	What is your level of satisfaction with the private parking provision?	1	2	3	4	5

Section G: Public and neighbourhood facilities

G1. For each of the questions below, select the response that best characterises how you feel about the statement, where: 1 = Very dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, 5 = Very satisfied. ***(Please mark your answer with an "X")***

1.1	What is your level of satisfaction with the provision/access/distance to health facilities?	1	2	3	4	5
1.2	What is your level of satisfaction with the provision/access/distance to social facilities?	1	2	3	4	5
1.3	What is your level of satisfaction with the provision/access/distance to educational facilities?	1	2	3	4	5
1.4	What is your level of satisfaction with the provision/access/distance to retail facilities?	1	2	3	4	5
1.5	What is your level of satisfaction with the provision/access/distance to paraplegic facilities?	1	2	3	4	5
1.6	What is your level of satisfaction with the provision/access/distance to sports and recreational activities?	1	2	3	4	5
1.7	What is your level of satisfaction with the provision/access/distance to public open spaces?	1	2	3	4	5
1.8	What is your level of satisfaction with the provision/access/distance to public transportation?	1	2	3	4	5
1.9	What is your level of satisfaction with the provision/access/distance to pedestrian infrastructure and facilities?	1	2	3	4	5

Section H: Social environment

H1. For each of the questions below, select the response that best characterises how you feel about the statement, where: 1 = Very dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied, 5 = Very satisfied. ***(Please mark your answer with an "X")***

1.1	What is your level of satisfaction with regard to air pollution in your neighbourhood?	1	2	3	4	5
1.2	What is your level of satisfaction with regard to water pollution in your neighbourhood?	1	2	3	4	5
1.3	What is your level of satisfaction with regard to noise/sound pollution in your neighbourhood?	1	2	3	4	5
1.4	What is your level of satisfaction with regard to soil pollution in your neighbourhood?	1	2	3	4	5
1.5	What is your level of satisfaction with the level of privacy?	1	2	3	4	5
1.6	What is your level of satisfaction with the overall safety and security within your neighbourhood?	1	2	3	4	5
1.7	What is your level of satisfaction with the number of people within the household?	1	2	3	4	5
1.8	What is your level of satisfaction with the number of people within the community?	1	2	3	4	5
1.9	What is your level of satisfaction with the number of relatives and friends who live within the community?	1	2	3	4	5
1.10	What is your level of satisfaction with the relationship shared amongst community members?	1	2	3	4	5
1.11	What is your level of satisfaction with the traditional/cultural values within the community?	1	2	3	4	5
1.12	What is your level of satisfaction within regard to community participation within the community?	1	2	3	4	5
1.13	What is your level of satisfaction with the level of vandalism within the area/community?	1	2	3	4	5

Section I: Residential satisfaction during Covid-19 lockdown in South Africa

I1. How did your communication with people in the household take shape during this Covid-19 pandemic period?

1	Much better	
2	Somewhat good	
3	Unchanged	
4	Worse	
5	Much worse	

I2. How did your communication with relatives and friends take shape during this

pandemic period?

1	Much better	
2	Somewhat good	
3	Unchanged	
4	Worse	
5	Much worse	

I3. How was your communication with your neighbours shaped during this pandemic period?

1	Much better	
2	Somewhat good	
3	Unchanged	
4	Worse	
5	Much worse	

I4. How often do you meet with your neighbours during this pandemic?

1	Once a week	
2	Once every two weeks	
3	Every month	
4	Rarely	
5	Never	

I5. Where do you meet your neighbours during this pandemic period?

1	In my/their house/flat	
2	On the stairs/in the elevator	
3	Parking	
4	Market	
5	Open spaces	
6	Children’s playground	
7	Nowhere	
8	Other (Specify)	

I6. Have you had any problems with your neighbours during this pandemic period?

1	Yes	
2	No	

I7. What kind of transport do you use to travel anywhere you want to go during this pandemic period?

……
……
……
……
……..

I8. Do you feel this mode of transport provides social distancing? ***(Please state your reason for your response)***

1	Yes	
2	No	

Reason for response:

……
……
……
……
……..

I9. How often do you have to travel using this mode of transport during this pandemic?

1	Every day	
2	Several days a week	
3	Rarely	
4	Never	

I10. Do you feel safe from contracting Covid-19 using this mode of transport? ***(Please state your reason for your response)***

1	Yes	
2	No	

Reason for response:

……
……
……
……
……..

I11. Do you feel safe living in your household during this Covid-19 pandemic? ***(Please state your reason for your response)***

1	Yes	
2	No	

Reason for response:

……
……
……
……
……..

I12. How satisfied are you with your life in this dwelling in general during this pandemic?

1	Not satisfied at all	
2	Not satisfied	
3	Satisfied	
4	Very satisfied	

I13. How suitable is the housing you live in during this pandemic to take the actions you need?

1	Very suitable	
2	Somewhat suitable	
3	Somewhat unsuitable	
4	Not suitable at all	

I14. If you had an option, what kind of home would you like to live in this pandemic period? ***(You can identify 1 option)***

1	Stand-alone house	
2	Apartment	
3	Duplex/simplex with a garden	
4	Other – Specify	

I11. Did you change any structure of your household due to the pandemic (e.g., room extension or repurposing)? ***(Please state your reason for your response)***

1	Yes	
2	No	

Reason for response:

……
……

Thank you so much for taking the time to complete this questionnaire!