DURBAN UNIVERSITY OF TECHNOLOGY

IMPROVING HOUSEHOLD SATISFACTION WITH GOVERNMENT-PROVIDED HOUSES IN THE CITY OF DURBAN

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Abstract

The South African government provides low-cost houses to households whose combined average monthly income is below R3 500. This is done to promote an integrated society by developing sustainable human settlements and quality housing within a subsidy system for different income groups. Nevertheless, occupants frequently express dissatisfaction with their homes, often citing common complaints about the subpar quality of these houses. The government spends a lot of money on constructing these houses, and occupants ought to derive maximum satisfaction. This study sought to establish possible ways to improve household satisfaction with the low-cost houses provided by the government. The study adopted a descriptive cross-sectional design, collecting quantitative data from 375 occupants of government-provided low-cost houses across the city of Durban. The principal component analysis and probit regression models were then used to estimate the key determinants of household satisfaction with government-provided houses. The results from the study are essential for informing public policy on the planning and construction of low-cost houses. More precisely, the results inform public policy on human settlements.

Keywords: Human settlement; low-cost houses; public policy; RDP houses

Declaration by student

Following the University's rules, I declare that this dissertation is my work. I further declare that it has never been submitted for assessment of a degree or qualification to another university.

Student's signature

Dedication

This dissertation is dedicated to my cherished daughter Lisakhanya Angel Mnguni, my parents, Mr M.H. Ndlovu and Mrs N.R. Ndlovu, my siblings and my late sister Zakhona Prudence Ndlovu, a great academic.

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List of acronyms

ANC	African National Congress
BAC	Bid Adjudication Committee
BEC	Bid Evaluation Committee
BSC	Bid Specification Committee
COGTA	Cooperative Governance and Traditional Affairs
DUT-IREC	Durban University of Technology's Research Ethics Committee
HSP	Housing Sector Plan
IDP	Integrated Development Plan
KMO	Kaiser- Meyer- Olkin
NHBRC	National Home Builders Registration Council
PCA	Principal Component Analysis
RDP	Reconstruction and Development Programme
SABC	South African Broadcasting Corporation

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CHAPTER 1

INTRODUCTION

1.1 Introduction and background of the study

After attaining democracy in 1994, the newly elected South African government implemented several policies aimed at opening and developing the economy for all South Africans. The Reconstruction Development Programme (RDP) a coherent socio-economic policy framework that sought to mobilise resources towards building an inclusive South Africa that did not discriminate against its people. This was among the main policies implemented by the African National Congress led democratically elected government. The main thrust of the RDP was to meet the basic needs of all South Africans, develop human resources, build an inclusive economy, and democratise the state and society.

The basic needs emphasised in the RDP include access to houses for all citizens, including those who cannot afford to buy houses. Through this programme, the government sought to promote an integrated society by developing sustainable human settlements and quality housing within a subsidy system for different income groups (Amoah et al. 2022). As a result, more than 2.8 million houses were built under this programme during the first 20 years of democratic rule (Mncwango 2019). The total number of houses built by the government since 1994 grew to over 4.7 million by 2018 (Department of Human Settlements 2018). Despite the government's primary objective was to provide more houses, the progress it made is noteworthy. Most importantly, the impact of the low-cost houses provided by the government (also referred to as RDP houses in this study) was a positive step towards addressing poverty. This is mainly because the beneficiaries of these houses are low-income South Africans whose combined average household income falls below R3 500 per month (Govender 2020). With such low incomes, the beneficiaries would have faced significant challenges in affording decent houses in their lifetime.

While millions of South Africans have benefitted from the government-provided houses, there is a huge backlog in access to decent houses in the country (Chakwizira 2019; Mpingana et al. 2023). With more than 61% of the South African population living in urban areas, the housing backlogs continue to swell, causing massive socio-economic challenges across the country. The housing backlog in South Africa is estimated at more than 2.6 million units (Mhlongo et al. 2022; Sobantu and Noyoo 2022). These backlogs vary from one region to another and from one city to another. For example, about 203 000 RDP houses have been built in the city of Durban to date, with the delivery of houses ranging between 4 000 to 6 000 units per annum (eThekwini Municipality 2023). As of 2019, the city had a housing backlog of 385 000 units, which was expected to take between 40 to 80 years to address given the current funding levels, subsidies and projected population growth (Cooperative Governance and Traditional Affairs [COGTA] (2020). Chakwizira (2019); Dubbeld (2023); and Sobantu and Noyoo (2022) provide detailed discussions on the housing backlogs across South African cities, and their key drivers are provided in the current literature.

Various studies in the literature cite population growth and massive urbanisation among the key determinants of housing backlogs observed in South Africa (Khambule and Mdlalose 2022; Obioha 2022). On the other hand, some evidence exists to the effect that government inefficiencies in managing the RDP housing processes and corruption in awarding the construction tenders should also be blamed for the observed backlogs (Maluleke et al. 2019; Manomano 2022; Osunsanmi 2023). While all these issues are worth noting, it is important to acknowledge that the ANC-led democratic government inherited some of the observed backlogs from the segregating apartheid era, which excluded several groups of people from benefitting from the resources of the country based on racial lines. As such, undoing the evil of the apartheid past can take longer than anticipated, especially in developing economies like South Africa.

The provision of RDP houses in South Africa is within the competency of the local government (Madisha 2021). In the context of the eThekwini Metropolitan Municipality, which governs public services in the city of Durban, house construction tenders are awarded according to the municipality's supply chain management policy. This policy identifies the Bid Specification Committee (BSC), Bid Evaluation Committee (BEC)

and the Bid Adjudication Committee (BAC). Each of these committees has clearly specified roles. Once the local government grants authority to invite bids, the BSC approves the compilation of specifications for each public invitation. Subsequently, the BEC evaluates all bids, and the BAC considers the report and makes recommendations to the bid evaluation committee to make a final award (eThekwini Municipality 2023).

1.2 Research problem

Despite significant progress in providing RDP houses to South Africans, many beneficiaries continue to complain about the quality of these houses. Studies in the literature commonly argue that the application of quality management is usually neglected by the government during the construction process (Amoah and Sibelekwana 2023; Amoah et al. 2022; Manomano 2022; Mbatha 2019). Consequently, evidence of low-quality RDP houses continues to emerge both in practice and in the literature. The major challenges constantly reported in the literature are low-quality building materials and poor construction standards, which compromise the quality of the structures, making them susceptible to collapsing (Amoah and Sibelekwana 2023; Amoah et al. 2022). Beneficiaries commonly complain about leaking roofs, poor plaster and paint finishes, uneven floor finishes, poor ventilation, cracked walls, peeling plaster or paint, and cracked floors, among other issues (Amoah et al. 2022; Manomano 2022; Mbatha 2019). While some of the complaints can be attributed to maintenance, many of them result from poor workmanship during construction.

In some cases, beneficiaries often express dissatisfaction with the size of the RDP houses, which are generally said to be smaller than the expected size needed to accommodate an average household (Mbatha 2019). While the average household size in South Africa is about 3.4 family members, these figures are generally higher in lower-income households because they commonly have extended family members (Statistics South Africa 2022). Among other challenges, there have also been complaints about the houses being further from important amenities, challenges with solid waste and wastewater disposal, regular water and electricity supply challenges,

and the yard being small for any extra activities (Manomano 2022; Mbatha 2019). Considering the large sums of money spent by the government towards the construction of RDP houses and the importance of these houses given the socio-economic challenges experienced by many South Africans, it is important that durability and longevity be promoted in the construction of these houses. To achieve this, both quality management and feedback from current beneficiaries of RDP houses should be central to human settlement policy and implementation.

Some studies in the literature argue that there is no proper and genuine stakeholder engagement during the construction of these houses (Maluleke et al. 2019; Manomano 2022; Osunsanmi 2023). Consequently, contractors usually get away with poor workmanship while beneficiaries are left with poorly constructed RDP houses. Genuine engagement between the government and communities should be promoted in order to construct durable RDP houses that will at least satisfy occupants for a relatively longer period. The basis of such engagements includes getting feedback from current beneficiaries and genuinely acting on it when developing human settlement policies.

1.3 Aim and objectives of the study

This study aims to establish ways to improve household satisfaction with low-cost houses provided by the government (also called RDP houses). To achieve this, the study uses a case study of selected areas with RDP houses in the city of Durban. The aim of the study is achieved through the fulfilment of four objectives, namely:

i. To determine the satisfaction of beneficiaries of the RDP houses with the structural components of the houses they received from the government.

ii. To establish the common challenges experienced by households occupying RDP houses in the city of Durban.

iii. To establish key factors to improve household satisfaction with RDP houses.

iv. To make recommendations that may improve household satisfaction with government-provided low-cost houses.

1.4 Significance of the study

While the South African government has made significant progress in promoting access to houses through by providing low-cost houses, the quality of these houses has been a major concern both in practice and in the literature (Amoah and Sibelekwana 2023; Amoah et al. 2022; Mbatha 2019). The financial investment in the construction of these houses and the role these houses play in addressing poverty and providing dignity to many South Africans warrants the necessity for sustainability and durability in the RDP houses. Central to constructing durable RDP houses that provide satisfaction to their occupants is tailor-making them to the needs and expectations of beneficiaries. Getting feedback from current occupants of the RDP houses and genuinely acting on the feedback through proper quality management and control will improve the quality of the RDP houses in the future. This study plays a significant role in providing policymakers with feedback on the satisfaction of current beneficiaries of RDP houses. In doing this, the study contributes to the literature and policymaking on human settlements. Evidence-based policymaking is essential in improving citizen satisfaction with public goods. This is important in democracies like South Africa, where poor performance by the government usually results in service delivery protests, some of which end with violence and the destruction of essential infrastructure.

1.5 Organisation of the study

The remainder of this study is organised into four chapters. Chapter 2 discusses the theoretical and empirical literature underpinning the study. Chapter 3 delves into the methodology used in the study. Chapter 4 presents the results of the study. Chapter 5 concludes the study and provides policy recommendations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The South African Constitution (1996) enshrines the right for everyone to access housing. It gives the state a mandate to take reasonable legislative measures to provide every South African with access to houses. The South African government has taken significant measures to provide low-cost houses to low-income households since the end of apartheid. The Reconstruction and Development Programme (RDP), a government socio-economic policy framework adopted in 1994 became the main policy thrust and the foundation for the provision of low-cost houses. As a result, the low-cost houses constructed under this programme became popularly known as RDP houses. This chapter reviews some of the literature linked to the provision of low-cost houses. The rest of the chapter is organised into four main sections. Section 2 discusses the theoretical literature that underpins this study. Section 3 discusses the empirical literature linked to the provision of low-cost houses. Section 4 discusses the legislation and policies that govern the provision of low-cost houses in South Africa. Section 5 concludes the chapter.

2.2 Theoretical literature

Several theories link the provision of public services and the satisfaction of citizens to public goods. While many such theories exist, this study adopts two common theories as key theories in the provision of low-cost houses and the satisfaction of beneficiaries with government-provided houses. The adopted theories are the expectancy-disconfirmation theory (Oliver 1980) and the housing needs theory (Rossi 1995). These theories and how they underpin this study are discussed briefly in this subsection.

2.2.1 The housing needs theory

Developed by Rossi (1955), the theory suggests that an individual's aspirations and needs change as they progress through life. It argues that the inadequate fulfilment of the present and desired housing needs results in concern, leading to dissatisfaction. According to the theory, residential mobility would then occur, and households would relocate to places where their present and desired housing needs can be satisfied. Satisfaction with housing needs in this context refers to the approval of the conditions of the house and its neighbourhood. Thus, if the structure of the house and the neighbourhood's reputation are good, then the level of satisfaction is expected to be higher. The theory introduced the notion of 'housing needs' to conceptualise people's residential satisfaction or dissatisfaction. More precisely, the theory argued that lifecycle changes may generate different space requirements, which are considered the most important aspects of people's needs. Therefore, households will likely feel dissatisfied if their housing and neighbourhood fail to meet their residential needs and aspirations. The discrepancy between current and desired housing needs creates housing stress and dissatisfaction. Households generally respond to this distress through migration.

This theory is relevant to this study for several reasons. Generally, the theory seeks to improve household satisfaction, which is critical in the context of this study, given the increasing reports of dissatisfaction by occupants of low-cost houses provided by the South African government. Therefore, the theory plays an essential in assisting policymakers improve household satisfaction with low-cost houses. Thus, the theory is directly linked to this study's main aim, which seeks to propose solutions towards improving household satisfaction with low-cost houses provided by the government. The literature contains several complaints from occupants of government-provided low-cost houses (Amoah and Sibelekwana, 2023; Amoah et al., 2022; Manomano, 2022; Mbatha, 2019). Thus, understanding the housing needs theory can be an essential gateway to providing houses that satisfy the needs of the occupants.

2.2.2 The expectancy-disconfirmation theory

The expectancy-disconfirmation theory, which was developed by Oliver (1980), is an approach predominantly adopted to explain citizen satisfaction with public services. It posits that citizens compare the performance of a service against their expectations of it. Satisfaction occurs if the perceived performance meets or exceeds the expectations. While the theory originated in the marketing domain, it has become important across several other domains. The public sector uses the theory to track citizen satisfaction with publicly provided goods and services (Zhang et al. 2022). It was first introduced to the public administration domain by Van Ryzin (2004) and has since made it possible for the government to measure people's satisfaction with public goods. Ever since its adoption in the public sector, the expectancy-disconfirmation theory has become critical and essential for public policymakers when measuring satisfaction.

The distinction between the actual and anticipated service is known as the disconfirmation (Wang and Fan 2022). When performance exceeds expectations, it implies that the disconfirmation is positive. Conversely, when performance does not meet expectations, it implies that the disconfirmation is negative. The theory stresses the importance of disconfirmation in light of the transition in expectations. Lee et al. (2022) tested the expectancy-disconfirmation theory through a satisfaction survey in Taiwan and found that standard norms have an effect on citizen satisfaction in policy transportation, public safety and environmental cleanliness. The study then concluded that the government should consider citizens' expectations. This may be beneficial to the management of dissatisfaction and improve the citizens' view of the government (Lee et al. 2022).

The advantages and disadvantages of the expectancy-disconfirmation theory are thoroughly documented in the literature. Elkhani and Bakri (2012) argue that the theory is generally effective and productive as a measure of standard and performance. However, its main shortcoming is its uncertainty, as it assumes that the predicted expectations of a product or service before use are the same as the expectations found after the use. Another disadvantage is that the expectancy-disconfirmation theory is based on the cognitive dissonance theory introduced by Festiger (1957), which

suggests that the existence of cognitions (aspects of knowledge) can be applied to each other. Thus, it means that they are either connected in agreement (consonant) or not connected in disagreement (disconsonant) (Harmon-Jones and Mills 2019). This implies that a disagreement (dissonance) due to emotional distress can motivate a person to reduce the dissonance by avoiding any knowledge that may exacerbate it. Regardless of these disadvantages, the theory is applicable to this study because of its ability to measure standards and performance, making it an important theory to underpin this study.

2.3 Empirical literature

Several studies on the provision of low-cost houses exist in the literature. Policies have also been developed and implemented to govern the provision of these low-cost houses both in South Africa and in many other developing countries. This section discusses some of the empirical literature on the provision of low-cost houses. The section is organised into four main subsections. The first section discusses the provision of low-cost houses in South Africa. Second, the section discusses the common challenges experienced by occupants of low-cost houses in South Africa. Third, elaborates on the impact of structural challenges in low-cost houses. Lastly, the section discusses some of the solutions commonly proposed in the literature.

2.3.1 The provision of low-cost houses in South Africa

Pre-1994, South Africa was under an apartheid regime that discriminated against and segregated people according to race. Access to superior services was reserved predominantly for White South Africans, while non-White South Africans were discriminated against (Fernandez 2020; Jegede and Shikwambane 2021). Due to extreme segregation during the apartheid era, non-White South Africans could not access better houses. Mobility restrictions, which confined non-White South Africans to areas where houses were generally inferior and, in most cases, inhabitable, made this situation even worse (Migozzi 2020; Ndinga-Kanga et al. 2020; Turok et al. 2021).

Therefore, the main thrust of the post-apartheid democratic government led by the African National Congress (ANC) was to facilitate easy access to basic services for all South Africans, regardless of their race. Amongst the new government's focus was the provision of houses to low-income earners who could not afford to build houses for themselves (Govender 2020).

The government's effort to address housing shortages resulted in developing and implementing the RDP policy framework in 1994, a socio-economic government policy whose main aspirations were growth, development, reconstruction, and redistribution in an inclusive South Africa. One important focus of the RDP policy framework was the housing programme, which was introduced to redress the imbalances of the apartheid legacy by providing decent housing to poor people who were segregated by the then-apartheid government (Charlton 2013; Eglin and Kenyon 2016). As a result, close to five million houses were built under the RDP scheme from 1994 to 2018 (Department of Human Settlements 2018; Mbatha 2019). These high numbers clearly show the democratic government's effort to undo the evils of the past and provide decent houses to low-income South Africans.

Despite this great effort, the South African government still battles housing backlogs, which are estimated to be more than 2.6 million units (Dubbeld 2023; Manomano 2022; Mhlongo et al. 2022; Sobantu and Noyoo 2022). Backlogs were generally expected given that most of them were inherited from the segregating apartheid past. Thus, eradicating homelessness within a short period is impossible, especially in less developed countries where national resources are generally scarce and overstretched. Equally, it is important to note that several other challenges, like rising population growth, slow economic growth, and insufficient government funds, contribute towards widening existing backlogs (Khambule and Mdlalose 2022; Obioha 2022).

At this point, it is important to note that the houses built under the RDP scheme are meant for low-income households whose combined average income is below R3 500. Nevertheless, Sabela (2020) argues that literature on the trends and realities with regard to these houses, including an understanding of who occupies or gains from these houses, is limited. The common argument in the literature is against the

approach adopted by most state-assisted housing programmes that focus on quantity without any adequate attention towards achieving sustainable resettlements and enhancing local livelihoods. As such, several challenges have emerged, most of them reported by the occupants of the houses built under the RDP scheme.

While South African laws prescribe and protect the three spheres of government (national, provincial, and local), it is important to understand each sphere's role in providing low-cost houses. The national government’s role includes setting up national policies and guidelines that promote an effective environment for the provision of houses to low-income households. It establishes a national policy for developing human settlements, sets housing delivery goals, and inspects the fulfilment of these goals. On the other hand, provincial governments are responsible for executing and assisting in the development of human settlements by establishing provincial human settlement policies and providing houses as per the housing needs of each province. Municipalities, being part of the local sphere, should develop an integrated development plan (IDP) that provides details on how housing and other socioeconomic needs will be addressed within each municipality. The role of each sphere is clearly discussed in various government pieces of legislation, including the Housing Act (107 of 1997) and the Municipal Systems Act (32 of 2000). These and other pieces of legislation are discussed briefly later in this chapter.

Some evidence on the role of municipalities is provided in the eThekwini Municipality’s IDP for the period 2023–2027, detailing the municipality’s Housing Sector Plan (HSP). This plan aligns with the National Housing Act (107 of 1997) and provides details on how the municipality intends to provide houses to low-income households within its jurisdiction. All municipalities in South Africa are compelled by national government policy to draft such plans in consultation with key stakeholders within the municipality.

2.3.2 Common challenges experienced by occupants of RDP houses

Poor South Africans have made considerable efforts to access decent houses, but the occupants of government-provided low-cost houses continue to report several negative issues. Studies in the literature report numerous structural defects commonly observed in RDP houses. The most recent studies that clearly discuss details on the structural defects observed in the RDP houses include Mbatha (2019), Amoah et al. (2022), Manomano (2022) and Amoah and Sibelekwana (2023). Common structural defects reported in these studies include cracked walls, peeling plaster and paint, door frame issues, and uneven floor plaster finishes. It is generally argued that these defects result from low-quality building materials, poor construction procedures, derelict structural frames and poor workmanship (Amoah et al. 2022; Manomano 2022; Mbatha 2019). Some studies also mention that occupants complain about the houses being too small, having poor ventilation, poor sanitation, and insufficient land, among other critical issues (Manomano 2022; Mbatha 2019; Mashwama et al. 2018). Due to these challenges, some beneficiaries resort to renting out the properties. Many of those who continue to live in these properties do so out of necessity and continue to be dissatisfied.

Several factors are commonly cited as the key drivers of the challenges observed in the RDP houses. Amoah et al. (2022) identified the lack of oversight and quality control as the major factors contributing to poor workmanship and the use of poor-quality materials during construction. The general recommendation to address this problem includes the South African government promoting quality management while constructing RDP houses. Therefore, the South African government should use robust engineering approaches to assess the quality and strength of the RDP houses during and after construction. Equally, some studies cite corruption in the awarding of construction tenders as the key driver of these challenges, while other studies argue that stakeholders are not properly consulted during the construction of RDP houses (Maluleke et al. 2019; Manomano 2022; Osunsanmi 2023). The South African Broadcasting Corporation (SABC 2023) provides further evidence of ongoing challenges regarding the quality of RDP houses, ascribing them to poor workmanship. Addressing these challenges is essential to ensure that RDP houses meet the satisfaction of their occupants.

Nyakala et al. (2021) provide further evidence of problems associated with RDP houses, mentioning visible building defects like structural cracking, defective plaster, faulty ventilation and roof leakage, as well as timber rot fungus and mould. Noncompliance with building regulations and directives during construction initiates these building defects, which generally degrade the quality of the house's structure (Nyakala et al., 2021). Consequently, Thwala (2020) asserts that excellence and efficiency should always be prioritised when constructing RDP houses. There is some evidence that RDP houses are exposed to structural deformity within a short period of occupation (Nyakala et al., 2021; Thwala 2020). Many of these occupants are unhappy about the housing standards and conditions of these houses, which in turn fuels their fear that they are temporary and that their durability is weak. There have also been reports of the house being inconsiderably smaller than anticipated.

The National Home Builders Registration Council's (NHBRC 2019) highlighted the root causes of the poor-quality, low-cost houses provided by the government. Key among these determinants is the inadequate examination of building contractors at the time of construction, poor expertise, insufficient or absent service infrastructure such as storm water systems, a lack of knowledge and inexperienced homebuilders. The NHBRC (2019) identified other factors that lead to substandard buildings, such as the use of improper or substandard building materials that do not meet acceptable standards, and incompetent structural design resulting from inappropriate soil allocation, which leads to a flawed base groundwork. Equally, poor workmanship and construction procedures are often cited as the main drivers of substandard houses. For example, evidence exists that deformities are often due to insufficient plaster cover, water-repellent covers and decaying concrete (Kumar and Sriram 2017; Mac-Barango 2017). Several other determinants are provided in the literature Aigbavboa et al. (2019) and Nyakala et al. (2021) provide several other determinants in the literature such as ineffective site management, an emphasis on production over quality, prioritisation of time by the contractor, insufficient quality expertise among contractors and the employment of inexperienced staff.

Maintenance issues are among other challenges facing those living in the RDP houses. Poor house design, unsound homes unsuitable for the local climate, and houses with high maintenance costs are common challenges in the low-income sector

(Zunguzane et al. 2012). Greyling (2009) further states that it is extremely important to keep the current structure in good condition and maintain the physical structure of the building. When maintenance is not practised, it may lead to further difficulties. The government is not the only one responsible for maintaining the house, it is also the responsibility of the owner or occupant. However, the occupants often complain that they use their own money to repair defects and preserve their RDP houses. Many complaints also highlight the poor location of these RDP houses, which they are often built in the most deserted places, making it difficult to access public transport, medical facilities, schools and workplaces. Reports also indicate that the small size of the RDP houses is small and does not allow privacy for a family with children (Mashwama et al. 2018; Mkhwanazi et al. 2019). Greyling (2009) concurs that electricity supply, access to roads, maintenance of houses, and the distance from health care facilities, schools and amenities are main issues faced by RDP housing and he also emphasises access to both national and internal roads within the development should be ensured in a proper manner.

The World Health Organisation (2007) states that housing developments in Western countries are also confronted with a serious challenge in terms of proximity to health services, since they are located on the outskirts of cities that lack adequate healthcare facilities. The travel patterns and utilisation of time and financial resources are significantly influenced by the location of households. Concerning water and sanitation, according to Statistics of South Africa (2017), almost 1.3 million households have no access to piped water, and 748 597 households have no toilets at all, whilst 8 242 924 have flush toilets. The World Health Organisation (2010) reports that Western countries, such as the European region, also report sanitation problems; in Poland, many people do not have water for personal consumption, and Azerbaijan continues to have water shortages.

In South Africa, complaints about RDP houses include their small space sizes which does not permit the extension of the existing structure even when recipients wish to extend by adding more rooms once they have the financial means to do so (Charlton 2013; Mbatha 2019). The government notes various constraints to the effective and efficient provision of low-cost housing. These constraints include the mishandling and mismanagement of government funds allocated for low-cost housing, inadequate

budgets for house construction, insufficient tracking of financial accounts and corruption (Maluleke et al. 2019). The lack of effective stakeholders' involvement in the planning and procedures of providing low-cost housing is also constraining the effective provision of durable RDP houses (Mkhwanazi et al. 2019). Often, stakeholders become involved at a later stage, when there is not much input to help eradicate the issues at hand (Mashwama et al. 2018). Equally, public participation forums in South African municipalities are often criticised for being mere "box-ticking" exercises meant to comply with national government policies (Manqele 2021). Effective public participation is crucial for ensuring sustainability in the provision of houses by the government.

2.3.3 The impact of structural challenges in low-cost houses

Several respiratory-related health problems can be caused by mould and dampness due to deformities and defects in the structure of a building. The quality of housing has a significant impact on people's health. If the building contains defects, it becomes a hazard to the lives of people occupying it. Defective properties may also affect their occupants psychologically because they stress about their safety (Maratlulle 2022). A study conducted in Braamfischerville revealed that the RDP houses were built close to a mine dump, which is a health hazard that causes dust to enter the households. Another challenge is that other RDP houses built in another section of Braamfischerville had asbestos and no ceilings (Moolla et al. 2011).

Sometimes, the defects on RDP houses financially impact occupants requiring them to use their limited income to repair the houses (Jonston and Reid 2017). Numerous other studies agree that maintenance of these RDP houses is the occupant's responsibility. Sebola et al. (2023) also confirm that beneficiaries of low-cost housing perceive it as a process that has not reduced poverty but instead adds stress because they have to borrow money to fix the defects in the house. It is further stated that the occupants were told by housing builders that they should report any defects within six months of completion, and thereafter, they would have to take care of the maintenance themselves.

Equally, the government incurs financial losses when repairing RDP houses. The Department of Human Settlements (2021) reported that the government spent over R2 billion in the three years leading up to 2021 towards repairing poorly built RDP houses. Making alterations wastes both time and funds, as it costs even more to modify an existing structure to meet the stipulated standards. Building flaws have resulted in economic losses and may potentially compromise the integrity of those involved. These associates may lose interest in working towards the construction of durable, sustainable houses. Despite the loss to the fiscus, in order to build houses for people on the housing waiting list and ultimately reduce the backlog, the resources that are channelled to RDP housing rectification programming should be used (Motlhabane 2015).

2.3.4 Literature from other countries

According to Awasho and Alem (2023), defective building and maintenance issues were common in Ethiopia Mettu town. The defective buildings and maintenance issue could be as a result of poor workmanship, poor planning or perhaps because the buildings themselves were not designed according to the required specifications and also these specifications were not included in the planning stage. Other than defective buildings and maintenance issues, Awasho and Alem (2023) uncovered another common issue which was a contributing factor to housing construction defects, for instance, the issues of poor contract management.

From the research undertaken by Awasho and Alem (2023), construction defects could come in various forms, for instance patent and latent defects. The patent defects are regarded as hidden and difficult to see or identify with careful inspection, while the latent defects could be identified much simpler to identify through careful inspection. In addition, when dealing with construction defects, there are also different types of defects, namely structural and non-structural defects. The structural defects refers to imperfections in a building's structural component that arise from inadequate design, poor construction or the use of poor construction materials. On the other hand, non-structural defects refers to imperfections in a non-structural element that have a

reasonable chance of causing a structural element of a building to collapse as a result of poor construction.

A number of studies have identified different types of defects in a building. Alabi et al. (2024) classifies the defects according to building processes, namely design deficiency, any construction project design is crucial because it establishes the plans, specifications and parameters. The project development and construction phases will fail as a result of design defect which are a major type of construction defect during the building process. The literature further reveals that materials deficiency is another kind of building defect that commonly occurs during construction. The building uses a variety of man-made and natural materials and it is the duty of all users to ensure that they are used appropriately. It is also crucial to verify the sustainability and quality of the materials used during the construction process in order to avoid using poor quality materials. Finally, there are construction deficiencies which are an issue in the construction sector and typically arise from poor evaluation of standards and designs. When these construction indicators are not met such as damaged work, improperly painted surfaces, poor drainage and water proofing, poor soil compaction and a lack of communication construction defects become noticeable during the building phase. Furthermore, it was discovered that poor workmanship is the main cause of the most common defects in the residential buildings. The most significant contributing factor to poor workmanship is due to lack of experience and competency of construction workers (Alabi et al. 2024; Calabrese 2012).

2.3.5 Solutions commonly proposed in the literature

The literature suggests possible solutions to the challenges experienced by the occupants of RDP houses. Awasho and Alem (2023) suggest regular and continuous supervision during construction, as well as adequate maintenance of the building, as measures to minimise structural defects. The maintenance of a building significantly minimises defects as it preserves the building (Awasho and Alem 2023). Thus, maintaining a property protects it from hazards. Multiple systems have been designed at the construction stage to eliminate building defects. Issues that should be addressed at the construction stage include poor workmanship, dampness, cracks,

and defective plaster rendering. Problems like language and labourer communication barriers, supervision challenges, labourers' experience, faulty equipment, and the diverse roles of sub-contractors should be addressed during the construction phase (Sravani et al. 2020). Further, Sravani et al. (2020) recommend improving the training of staff and adherence to building standards as key activities towards minimising the production of defective buildings.

Other literature suggests that innovative building material and sustainable solutions may minimise structural defects. An innovative approach that has been used in residential construction involves repurposing shipping containers as a new concept for the built environment. Among other organisations in South Africa that have used this construction method is student housing in Brixton Umhlanga, which constructed 75 single-unit pad buildings in two months using 12-metre single containers. RDP houses could use containers that ensure shared living space, as have been done for student housing. The government offers disposal blocks as a service for existing RDP houses, and shared space such as dining and recreational areas can also benefit from the problem of square metres that current residents are facing (Murphy 2021).

The introduction of quality assurance has a significant influence on the low-cost housing sector and could also help tackle poor quality and its management (Amoah et al. 2020). Other challenges include project abandonment, a situation where the construction of the houses remains incomplete. An adequate approach to planning and implementation and through the implementation of project lifecycles is likely to reduce the abandonment of projects (Mac-Barango 2017). Competent project management skills are vital to preventing abandonment of projects. A process of planning, organising, managing and controlling company resources for the purpose of achieving or meeting specified objectives in order to deliver a result that is satisfactory is referred to as project management. Timeliness is an important factor for each construction industry participant because changes are based on time and vice versa (Malinga 2016).

2.4 Legislations and policies governing the provision of houses.

There are numerous pieces of legislation and policies that guide the provision of houses by the government in South Africa. The South African Bill of Rights enshrines that everyone's right to access adequate housing, mandating the state to take reasonable measures to achieve the progressive realisation of this right. As such, the provision of low-cost housing is one of the government's measures to realise the right of access to adequate housing. Several pieces of legislation and policies have been enacted to facilitate the realisation of this right. These include the RDP policy framework, the Housing Act (107 of 1997), the White Paper on Housing, and the Municipal Systems Act (32 of 2002). These enabling frameworks are discussed briefly in the following subsections.

2.4.1 Reconstruction and Development Programme (RDP)

The RDP, a socio-economic policy framework, was developed and implemented in 1994 by the ANC-led post-apartheid government. Its main thrust was to eliminate apartheid and create a constitutional, non-discriminative and unbiased society in South Africa. More specifically, RDP aimed to provide housing to about 12.5 million South Africans who lacked proper and decent houses at the time of its inception. Millions of people in South Africa had no decent houses before 1994. However, at the dawn of the democratic government, the provision and supply of affordable housing gained significant recognition as it provided 4.3 million houses and subsidies (Department of Human Settlements 2018). In order to provide housing for the previously disadvantaged, the African National Congress (ANC) initiated the construction of low-cost housing units under the Reconstruction and Development Programme (RDP), which are low-cost. Low-cost houses are government-provided houses for low-income beneficiaries who earn below R3 500 per month (Nqentsu 2017).

Although the government has made significant positive measures in providing the RDP houses to millions of citizens, the housing backlog of 2.1 million houses from 2013 to 2020 remains a constraint. Some service delivery protests are a result of the

reconstruction and development programme backlogs, which increased from 1.5 million in 1996 to 1.8 million units in 2001 and then 2.1 million from 2013 to 2020. Urbanisation and population growth, along with migration and demographic and political factors, contribute to this backlog and continue to have a significant impact on both the economy and society (Olujede et al. 2019; Maluleke et al. 2019).

Despite all the challenges detailed above, one positive outcome is that millions of citizens have been provided with proper homes. Regarding the successful provision of housing, the housing ministers during the years prior to 2023 observed that many homeless people, many of whom are among the poorest, as well as tenants, have become owners of the government-provided houses. In addition, they have also witnessed the transfer of title deeds, giving the beneficiaries full ownership. Both national and international recognition is given to the achievements of this programme (Maluleke et al. 2019).

2.4.2 Housing Act (107 of 1997)

The Housing Act 107 (1997) is a key piece of legislation in South Africa, which has given the White Paper on housing and building law a wide range of effects. The aim of the act is to set out the role of national, provincial and local governments in housing development as well as to establish a South African Housing Board to facilitate affordable housing development across all levels of government. The Act provides for general principles of housing development and defines the functions of government ministries within national, provincial and local governments concerning housing development. This is the basis on which national housing programmes are financed.

Section 2 of this Act stipulates that the needs of the poor should be considered by national, provincial and local authorities to develop housing while consulting citizens and communities affected by such development. It is also to ensure that housing development offers the widest possible choice of accommodation and tenures and is economically, financially, socially and environmentally sustainable. It has been built on integrated development that is governed in a transparent, accountable and equitable manner and upholds the principles of good governance. The national

government's role is outlined in the national policies, including national norms and standards relating to housing development, which must be determined by the government acting through the minister after having consulted all the members of executive committees and local organisations representing municipalities. It should also facilitate the setting of national housing delivery targets abroad and facilitate the setting of provincial and, where appropriate, local government housing delivery targets to support them and also against housing delivery and budgetary targets (Housing Act 107 of 1997).

The National Housing Code is one of the policies that complements the vision of the Housing Act, which is to develop housing. The code encourages the development of housing in rural and urban settlements. Section 4 of the Housing Act sets out the requirement to establish a national housing code, and the role of the national housing code is for the Minister to publish a code of conduct relating to the domestic housing policy. If there are any amendments to the code, the minister shall, as soon as possible, notify each provincial government and municipality of any such change during a given year (National Housing Code 2000).

2.4.3 White Paper on Housing (1994)

South Africa, for the first time in its history, now has a policy known as the White Paper for all its citizens. This policy was developed by the ANC government to enhance market certainty and strengthen the ability of provinces and local governments to meet their constitutional obligations. The White Paper on Housing (1994) recognises the National Housing Code and Housing Act's goal to develop housing by means of the Reconstruction and Development Programme (RDP) for low-income people. It points out that it is vital to make housing sustainable for a long time to benefit the public sector, the economy and government revenue. In order to ensure the successful launch of a sustainable housing programme that meets the needs arising from inherited backlogs and new family formation, the recognition of housing as a key and priority component of the reconstruction and development programme under the new democratic order should be secured by political will and financial support.

2.4.4 The Municipal Systems Act (32 of 2000)

This act aims to provide municipalities with essential guidelines, techniques and procedures that are necessary to permit the development of a continuous approach to the upliftment of their local communities while ensuring universal access to key services that are accessible to all citizens. The act also aims to define the legal character of a municipality by involving local communities and working closely with its political and administrative structures. In addition, the act aims to provide for the exercise and performance of the powers and functions of the municipalities and to ensure a clear and flexible framework for the community's participation. Furthermore, the aim is to lay down an easy and simple framework for key planning, performance management, and organisational change processes that serve as the foundation for the development of local government. The act also aims to provide a framework for the provision of services, service delivery agreements and municipal service districts, to foster the development of local public administration and human resources to empower the poor and ensure that municipalities implement service tariffs and credit control policies that take into account the citizens' needs.

The act posits that it will implement measures for debt collection and credit control, as well as develop an essential structure to support all spheres of government by setting monitoring mechanisms and standards that will enable upward mobility and convert local government into an efficient driver that fulfils the needs of citizens while uplifting the communities and introduces local government legal proceedings (Municipal Systems Act 32 of 2000). The national government is one of the three spheres of government responsible for the provision of housing. Its role is to prepare a housing policy that is necessary to set up and facilitate a sustainable national development process. It should also keep an eye on the implementation of the National Housing Code and establish and maintain a housing data bank and information system (Amoah et al. 2022).

The national housing code derives from the Housing Act, which is the fundamental legislation in support of section 26 of the Constitution of the Republic of South Africa, which envisions everyone's right to access adequate housing. In the light of this, the Municipal Systems Act, through local municipalities, plays a crucial role in the

progressive realisation of the right to adequate housing, empowering citizens to directly voice their needs (National Housing Code 2009). Among the components of the Municipal Systems Act are municipal functions and powers, legal nature and rights and duties of municipalities, community participation, integrated development planning, performance management, local public administration and human resources, municipal services and legal matters (Municipal Systems Act 32 of 2000).

2.5 Conclusion

This chapter reviewed the literature applicable to the provision of RDP houses in South Africa. It commenced by providing theoretical literature that relates to residential satisfaction. A discussion of some of the empirical literature on the provision of RDP houses in South Africa, challenges experienced by occupants of RDP houses, and policies and legislations governing the provision of housing in South Africa, followed. The literature review revealed the impact of structural challenges and the poor quality of the low-cost houses, while outlining possible solutions proposed in the literature.

CHAPTER 3

METHODOLOGY

3.1 Introduction

A methodology delineates the process by which the objectives formulated in a study are addressed. It provides scientific value and outlines the tools and scientific steps adopted to address the objectives of the study. This chapter discusses the methodology adopted for the study. Subsequent to this introduction, the chapter is organised into 12 broad sections. These sections separately present discussions on the research philosophy, approach, design, empirical setting, sampling, data collection process and instrument, data analysis, validity and reliability, and ethical considerations.

3.2 Research philosophy

A research philosophy is a belief about ways in which data about a phenomenon should be collected, analysed and used. There are two types of research philosophies, positivism and phenomenology. Positivism encourages a more objective interpretation of reality and using hard data from surveys and experiments, promotes a more objective interpretation of reality, while phenomenology deals with methods for studying people and their social behaviour. Positivism is more commonly associated with scientific research, whereas phenomenology has its roots in social sciences (Bajpai 2011; Altinay and Paraskevas 2016).

The literature further outlines key differences between these philosophies. Positivism's basic beliefs are that the world is external and objective, that the observer is independent, and that science is free of value. The worldview of phenomenology is that it is socially constructed and subjective, the researcher is part of what is going on,

and science is driven by human interests and motives. The sampling size for positivism is typically large to ensure the reliability and generalisability of findings. Smaller sample sizes are used in phenomenological studies use smaller sample sizes to consider perspectives and lived realities of the participants. Other features of positivism include the use of observation, surveys and experiments for data collection, whereas phenomenology employs semi-structured interviews, open-ended questions and documentation for data collection methods. The research instruments used in positivist philosophy are test scores, scales, questionnaires, and experimentation, while in phenomenology the researcher is the primary instrument. The positivism philosophy was selected for this study because the study utilised the quantitative approach. This approach deals with measuring the quantities applied to a specific phenomenon, which is expressed in terms of quantity or numerical data. Hence, the philosophy of positivism was chosen for this study because it allows researchers to rely on statistics and generalisations, which facilitates the development of conclusions (Alharahsheh and Puis 2020).

3.3 Research approach

Abubanjeh and Jaradat (2018) define a research design as the blueprint that guides the research process by laying out how a study will move from the aim to the outcomes. Thus, it is a comprehensive planning process used to collect and analyse data to increase the understanding of a specific topic. While several types of research designs exist, this study adopts a descriptive design to establish ways through which households' satisfaction with RDP houses can be improved. Further, the literature identifies three broad dimensions of methodological choices, namely, quantitative, qualitative, and mixed-method approaches (Brown 2022; Saunders et al. 2016). A quantitative approach uses mathematical and statistical analyses through a process that quantifies responses, while a qualitative approach involves a detailed and comprehensive study of the respondents' experiences, attitudes, and views where data is in the form of words (Brown 2022; Leavy 2017). On the other hand, a mixed-method approach combines both quantitative and qualitative approaches and is commonly used to gain more insight through triangulation.

In the context of this study, a quantitative research approach is used to determine the possible ways through which household satisfaction with RDP houses can be improved. A quantitative approach is considered the most applicable in the context of this research for several reasons. Most importantly, it allows the collection of information from a larger sample size, thus providing views that may sufficiently mimic the total population (Rahman 2020). Equally, a quantitative research approach is very quick in terms of data collection, enabling the collection of data from a larger sample within the shortest period (Bell et al. 2022; Rahman 2020). In the context of this study, the large number of beneficiaries of RDP houses in the city of Durban necessitates the collection of data from a larger sample. A larger sample size would allow the results to mimic those that would have been obtained if the entire population were to be surveyed through a census.

3.4 Research design

A research design is the plan used to collect and analyse data. Types of research designs include experimental, quasi-experimental, descriptive, and correlational designs. Experimental and non-experimental designs are the two main types of quantitative research. The former is often referred to as a scientific method based on an experiment, which includes carrying out a test in strict conditions to establish a clear truth or evaluate the validity of a hypothesis. On the other hand, non-experimental research designs are those where the researcher can neither control, manipulate, nor alter the predictor variables but relies on interpretation, interactions, or observations to reach a conclusion (Gliner et al. 2017). Comparative, descriptive and associational designs are classes of non-experimental designs. Descriptive research refers to questions and studies that use only descriptive statistics such as averages, percentages, histograms, or frequency distributions that are not tested for statistical significance with inferential statistics. Moreover, analyses such as cross-tabulation tables to illustrate how many participants in each gender fall into one of several age groups, are often included in the methods section of studies. Inferential statistics shall not be used to analyse these descriptive tables. In order to be able to make inferences

from the sample of participants about the larger population, we almost always look at several variables and test their relationship with inferential statistical data.

The descriptive research design was selected for this study because of its ability to identify patterns in the characteristics of an investigated phenomenon. Quantitative data, such as sales figures, demographic data, or satisfaction surveys, can be collected for descriptive research. Generally, descriptive designs are credited in the literature for their ability to help researchers understand the characteristics of a group in a given situation, think systematically about what is going on with it, and provide ideas for further investigation and study (Apuke 2017). As such, a descriptive cross-sectional design was deemed necessary to establish the possible determinants of household satisfaction with government-provided low-cost houses in the city of Durban.

3.5 Empirical setting

This study was conducted in selected areas with RDP houses around the city of Durban. In terms of population statistics, Durban is the third largest city in South Africa after the city of Johannesburg and the city of Cape Town, respectively. Located in the eastern part of South Africa, in the province of KwaZulu-Natal, Durban has a total population of 3.9 million people (eThekwini Municipality 2023). The population is predominantly Black (74%), followed by Indian (18%), White (6%), and Coloured (2%) (CoGTA 2020). The dominant home language in the city is isiZulu, which is spoken by about 62% of the population, followed by the English language, which is spoken by 26% of the population (eThekwini Municipality 2023). Statistics show that there are 1 125 765 households in Durban, with an average household size of 3.3 family members. About 13.3% of this population lives in informal dwellings (also known as shacks), and 203 000 RDP houses have been built in the city (eThekwini Municipality 2023). The city's delivery of houses ranges between 4 000 to 6 000 housing units per annum. These RDP houses are distributed across three of the four spatial regions of the city, namely, the South, North and Outer West regions. Beneficiaries of these RDP houses are low-income citizens whose average household income is below R3 500 per month. As of 2019, the city had a housing backlog of 385 000 units, which was

expected to take between 40 to 80 years to be addressed if the current funding levels, subsidies, and projected population growth were considered (CoGTA 2020). Figure 3.1 shows the map of eThekwini Municipality and its different spatial regions.

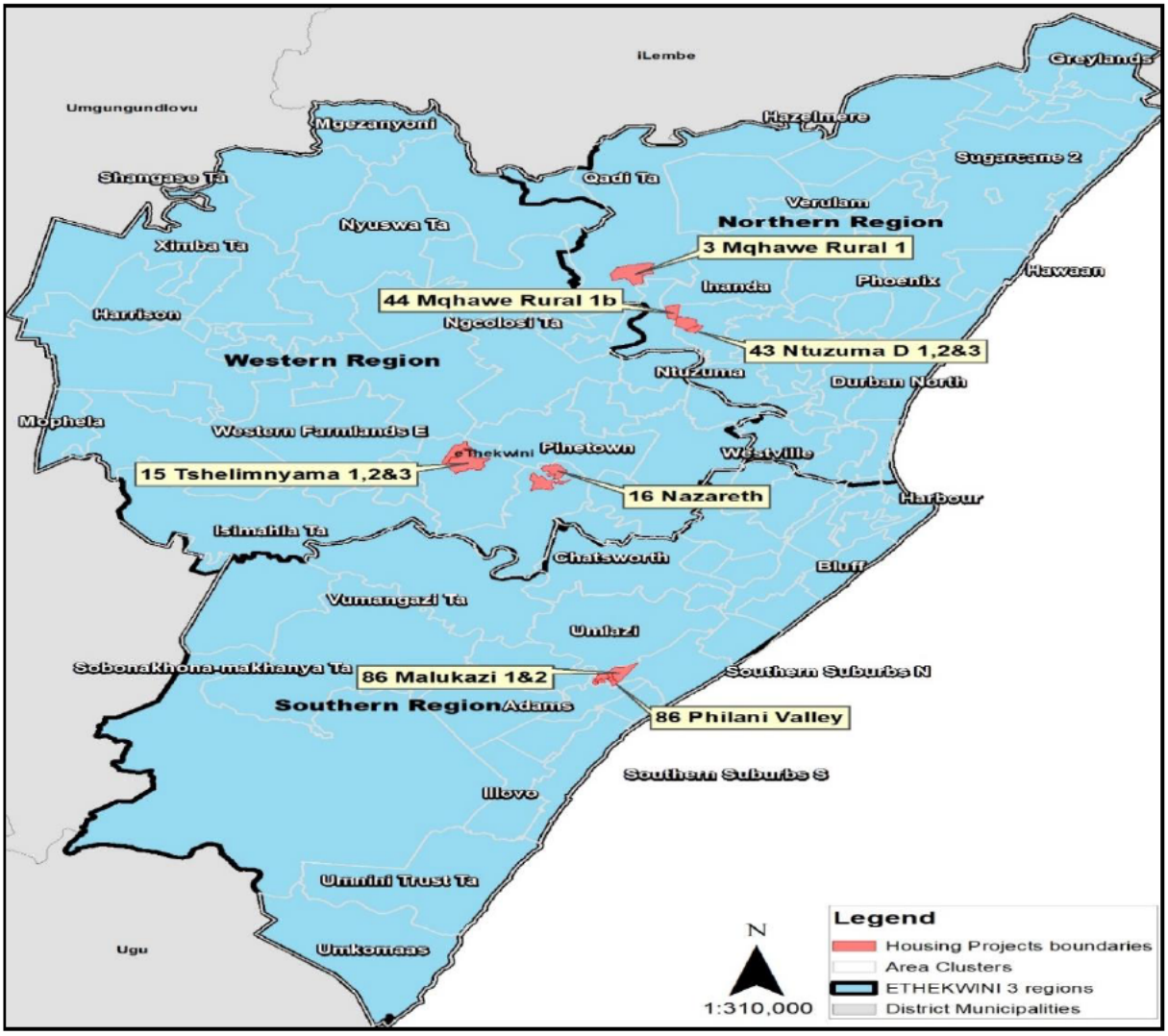

Figure 3.1: Map of the eThekwini Metropolitan Municipality

Source: Author's own diagram

Figure 3.1 indicates a map of the eThekwini Metropolitan Municipality with its three regions: the Southern region, the Western region and the Northern region. Since there are no RDP houses in the Central region, it was excluded from the study. Data was collected from occupants of RDP houses across six areas, specifically two areas from each of the three regions: namely, uMlazi (Philani Valley) and Malukazi (Ward 86) in the Southern region, Ntuzuma (Ward 43) and Mqhawe (Ward 3) and Tshelimnyama

(Ward 15) in the Northern region, and Nazareth (Ward 16) in the Western region. Figure 3.1 displays the spatial distribution of these areas on the city's map. In particular, these areas were selected based on reports by numerous owners to the municipality of defects in the RDP houses.

3.6 Study sample

A sample is a segment or subset of the population selected for investigation (Bryman et al. 2014). Generally, it is a subset of individuals, units, or elements with specific characteristics to be investigated (Taylor 2017). While many locations with RDP houses exist in the city of Durban, data for this study was collected from six areas with RDP houses as mentioned in the previous section. About 203 000 RDP houses have so far been constructed in the city of Durban (eThekwini Municipality 2023). Therefore, the study used 203 000 as the total population of RDP beneficiaries in the city. Subsequently, the Raosoft sample size calculator was used to determine the minimum sample size that can yield scientifically reliable results. Literature suggests that acceptable levels of confidence are 99%, 95% and 90% (D'Innocenzo, Lucas, Schwaab and Zhang 2023).

If the total population is 203 000 people and a 90% confidence level is assumed together with a 5% margin of error, then the minimum recommended sample size that generates reliable results is 271 responses. Therefore, the study targeted at least 271 responses. The intention was to equally draw these responses from the three spatial regions of the city mentioned earlier. The inclusion criteria were that the potential respondent should reside in each selected area, live in an RDP house, whether as owner or as tenant, be 18 years or older at the time of the survey, and voluntarily agree to participate in the survey. The exclusion criteria were anyone who did not reside in each selected area, anyone residing in the area but did not live in an RDP house, anyone younger than 18 years at the time of the survey, and any potential respondent who felt uncomfortable participating in the study.

3.7 Sampling and data collection procedure

According to Dos Santos et al. (2021), sampling is the process of selecting the respondents of a study. Bryman et al. (2014) identify two types of sampling techniques, namely, probability and non-probability. In the former, each unit has an equal chance of being chosen, while the latter does not guarantee that all the items will be selected (Etikan and Bala 2017; Rahi 2017). This study adopted the probability sampling technique because it incorporates an aspect of random selection, which ensures that everyone in the population has an equal chance of being selected (Berndt 2020). This is important in the context of this study because it addresses the problem of sample selection bias, which may arise if sampling is not conducted well. Berndt (2020) identifies four common classes of probability sampling, namely, simple random sampling, systematic sampling, stratified sampling, and cluster sampling. This study adopted the simple random sampling technique because it eliminates bias in selecting respondents by ensuring that everyone in the target sample has an equal chance of being chosen. Therefore, participants were randomly selected in the targeted areas across the three spatial regions of the city.

As previously mentioned, this study intended to collect primary quantitative data from the occupants of RDP houses in the selected areas across the city of Durban. Data collection commenced after full ethics approval was granted by the Durban University of Technology's Research Ethics Committee (DUT-IREC). The full research ethics approval received from DUT-IREC is attached as Appendix 1. All ethical standards were followed during data collection. Further, a gatekeeper's permission to conduct this study in the city was obtained from the eThekwini Municipality's Head of the Human Settlements Department prior to data collection. This department handles all issues related to RDP houses in the municipality, and its head of department has the authority to authorise the research related to the department in the municipality. A copy of the gatekeeper's permission is attached as Appendix 2.

A letter of information was provided to each potential respondent before they participated in the survey. This letter introduced the study to each potential respondent, providing all necessary information regarding their rights, procedures, and recourse. The letter of information was provided in both the English and isiZulu

language, allowing each potential respondent to choose the questionnaire prepared in the language of their preference. Both versions of the letter of information are attached as Appendices 3(a) and 3(b) respectively. All potential respondents were advised that their participation was voluntary and that they could withdraw from the study at any time if they wished to do so. After they understood the contents of the letter of information, potential respondents were asked to sign a written and dated informed consent indicating that they agreed to participate in the survey at their own free will and without any form of coercion. The informed consent letter was provided in both the English and isiZulu languages, and each respondent signed one in a language of their choice. Both versions of the letter of consent are presented in Appendices 4(a) and 4(b) respectively. Only after each respondent gave their informed consent where they asked to participate in the survey. Responding to the questionnaire took each participant approximately 10 minutes.

3.8 Data collection instrument

A data collection instrument is a tool used to gather information from the sampled respondents (Connaway and Radford 2017). Since this study collected quantitative data, a questionnaire was used as an instrument to collect data from the occupants of RDP houses. The questionnaire was developed following an extensive review of the literature on RDP houses. Challenges experienced by the occupants of RDP houses mentioned in the literature were modified to construct suitable questions for the questionnaire. Studies that were instrumental in the development of the questionnaire include Amoah et al. (2022), Amoah and Sibelekwana (2023) Manomano (2022), as well as Mbatha (2019). Further, experts in the field of human settlements were consulted to improve the validity of the questions included in the questionnaire.

The questionnaire designed in the study had two sections. Section 1 collected the biographical data of respondents, while the second section collected data on the common challenges and critical issues experienced by the occupants of RDP houses in Durban. Questions contained in the second section were closed-ended, with some based on a 4-point Likert scale with options “strongly agree, agree, disagree and strongly disagree”. The other questions were dichotomous (yes or no). Since residents

in the city of Durban predominantly speak isiZulu, there was a need to translate the questionnaire to isiZulu. Therefore, the questionnaire developed in the English language was also directly translated into isiZulu for the benefit of respondents not conversant in the English language. Both drafts of the English language and isiZulu versions of the questionnaire are attached as Appendices 5(a) and 5(b), respectively. Prior to data collection, the draft questionnaire was piloted on 10 occupants of RDP houses who were randomly selected across the city of Durban. The feedback from the pilot study was used to improve the quality of the questionnaire and did not form part of the main data for the study.

3.9 Data analysis

The principal component analysis (PCA) was used to establish the key factors determining household satisfaction with RDP houses. PCA is a factor analysis technique that works by extracting the maximum variance, putting it into the first component, and subsequently removing that variance to extract the maximum variance for the second component. It continues with this process until all important components and their loadings are established. Originating from the work of Pearson (1901) and Hotelling (1933), PCA is commonly thought of as a statistical technique for data reduction. The technique reduces the number of variables in an analysis by describing a series of uncorrelated linear combinations of the variables that contain most of the variance. In addition to data reduction, the variances from a PCA are often inspected to learn more about the underlying structure of the data. The technique is widely used in studies that examine satisfaction in the literature. The most recent such studies include the works of Hadji and Dib (2022), Moteki (2022), and Patnaik et al. (2022). PCA is generally interpreted as a fixed-effects factor analysis with homoscedastic residuals. Its mathematical formulation is expressed as:

$$y_{ij} = \mathbf{a}_i'\mathbf{b}_j + e_{ij} \qquad i = 1, \dots, n \qquad j = 1, \dots, p \qquad (4.1)$$

where y_{ij} the elements of $\mathbf{Y}, \mathbf{a}_i$ (scores) and $\mathbf{b}_j$ (loadings) are f-vectors of parameters and e_{ij} are independent homoscedastic residuals. In the case of factor analysis, the scores $\mathbf{a}_i$ are random rather than fixed, and the residuals are allowed to be

heteroskedastic in j. It then follows that $E(\mathbf{Y})$ is a matrix rank of f, with f typically substantially less than n or p (Jackson 2003; Jolliffe 2002). In this manner, PCA is considered a regression model with a restricted number but unknown independent variables.

Furthermore, the study adopted probit regression models to estimate the marginal effect of socio-economic and biographic characteristics on household satisfaction with RDP houses, thereby establishing the variables that improve household satisfaction with RDP houses. According to Güneri and Durmuş (2020), probit models analyse binomial response variables by estimating the probability of observing a 0 or 1 in the dependent variable following a change in the values of given independent variables. The marginal effect estimate for each independent variable is the amount by which the probability of the dependent variable having the value 1 increases (or decreases if that estimate is negative) (Güneri and Durmuş 2020). Therefore, theoretical formulation of a basic probit model is expressed using the following mathematical formulation:

$$\Pr(y_i \neq 0|x_j) = \Phi(x_j\beta) \tag{4.2}$$

Where $\Pr$ is the probability of the dependent variable; y_i is the dependent variable, which is a dichotomous variable; x_j are the explanatory variables, Φ is the standard cumulative normal; and β is the coefficient of each explanatory variable.

Therefore, the mathematical formulation expressed in Equation 4.2 is modified to establish the effect of socio-economic and biographic variables on household satisfaction with RDP houses. It should be emphasised that respondents were asked 10 Likert scale questions on their satisfaction with the physical structure and environment of the house. These questions were structured in such a way that respondents who chose either agree or strongly agree indicated that they were satisfied with the physical structure and environment of the house. Those who chose either disagree or strongly disagree indicated dissatisfaction. It then follows that improving satisfaction requires understanding the characteristics of those who indicated dissatisfaction. Since probit models fit the maximum likelihood with a dependent variable that is dichotomous (i.e., coded 0 and 1), the outcomes from the 4-point Likert scale questions were converted to binary. To do this, dummy variables

were created for each of the 10 Likert scale questions. The value 1 was assigned where respondents indicated dissatisfaction with the conditions by choosing either disagree or strongly disagree, and 0 otherwise. This approach of converting Likert scale outcomes into binary outcomes is also used in the contemporary literature (Murwirapachena 2021; Ngcobo, Reddy and Murwirapachena 2023). The above was done separately for each of the 10 questions on household satisfaction, where each question became a binary dependent variable regressed against the biographical characteristics of the respondents. Thus, 10 models were separately estimated by transforming Equation 4.2 into the following empirical model:

$$y_i * = \alpha + \beta_1 Gender_i + \beta_2 Age_i + \beta_3 Race_i + \beta_4 HHsize_i + \beta_5 Edu_i + \beta_6 Income_i + \beta_7 HType_i + \beta_8 Duration_i + \beta_9 Ownership_i + \varepsilon_i \quad (4.3)$$

It is important to emphasise that the model expressed in Equation 4.3 was separately estimated for the 10 dependent variables (i.e., 10 questions on satisfaction). Nevertheless, only a single empirical model is illustrated since the 10 dependent variables were regressed against the same biographic characteristics. Table 3.1 provides a summarised description of the variables shown in Equation 4.3.

Table 3.1: Summarised description of variables in the empirical model

Variable	Category	Description per questionnaire
y_i^*	Enough space	The house has enough space for my household.
	Wall condition	The walls of the house are in good condition.
	Roof leaks	The roof does not leak when it rains.
	Doors & windows	The condition of the doors and windows is good.
	Acceptable ventilation	There is acceptable ventilation in the house.
	Sanitation condition	Sanitation for the house is in good condition.
	Future extension	The yard allows for future extension.
	Maintenance cost	It is not expensive to maintain the house.
	Public transport	The house is closer to public transport.
	Important amenities	The house is closer to important amenities.
$Gender_i$		Gender of each respondent
Age_i		Age of each respondent in years
$Race_i$		Racial group of each category
$HHsize_i$		Number of people in the household
Edu_i		Level of education
$Income_i$		Average monthly income in Rands
$HType_i$		Type of house (i.e., standalone or double storey)
$Duration_i$		Number of years lived in the house
$Ownership_i$		Whether respondent is an owner or a tenant
ε_i		Error term

Source: Author's own table

3.10 Validity and reliability

Validity refers to how accurately a method measures what it is intended to measure (Middleton 2019). It entails that results from a study should be applicable across multiple timeframes and constraints. Unless specified as a limitation, a study's results should apply to similar conditions over multiple timeframes and across different geographical boundaries. In the literature, there are different types of validity, namely construct, external and concept. According to Bryan et al. (2014), measurement validity, also known as construct validity, applies to quantitative research and deals with the issue of whether a measure accurately captures the idea it is intended to. If the results of a study can be generalised beyond the particular research setting is what is known as external validity. Locke (2012) states that the fundamental units of theory are concepts which serve as the building blocks of research and that concepts must be measured in order to be used in quantitative research, and after measurement, they may take the form of independent and dependent variables.

To accomplish validity in this study, an extensive literature review and experts were consulted in the development of the questionnaire. Furthermore, prior to data collection, the questionnaire was piloted on 10 occupants of RDP houses to eliminate any discernible forms of ambiguity and biases. Equally, sufficient time was given to both data collection and analysis as a measure to improve the robustness of the data and results. In addition to the above, the Kaiser-Meyer-Olkin (KMO) sampling adequacy test was used to measure the suitability of the data for PCA before PCA results were adopted. The test score ranges from 0 to 1, where 1 means extremely suitable and 0 means otherwise. The general rule for the test is to use PCA when a KMO score of at least 0.5 is reported.

Reliability entails the consistency of values obtained in repeated measurements under the same conditions with the same data collection instrument (Middleton 2019; Sürücü and Maslakçi 2020). According to Taherdoost (2016), the reliability of a study is determined by the consistency of its data collection instruments. This means that the data collection instrument must be free of personal bias, and there should be no room for suggested alternatives based on the researcher's personal preferences. Reliability can be divided into three types: inter-rater, test-retest and intra-rater. Krolikowska et

al. (2023) define inter-rater as an assessor to the degree of agreement between raters evaluating the same targets, and each random sample of targets being rated independently. This type of reliability refers to whether a particular measure applied to the same instrument and methodology will yield the same results at any given time.

Next is the test-retest reliability which describes the variation in measurements made on the same participant under the same conditions using the same measurement tool and this type is frequently used to assess how consistent numerical or quantitative ratings are over two distinct periods. Finally, intra-rater reliability which refers to variability in data obtained when one examiner records measurements over a minimum of two periods and whether assessments of the same participants by the same rater are consistent on at least two separate occasions (Krolikowska et al. 2023). To accomplish reliability, this study used the Cronbach's alpha test. This is a measure of internal consistency, as it measures how closely related a set of items are individually and as a group. The test quantifies the level of agreement on a standardised 0 to 1 scale, where higher values indicate higher agreement between specified items. The decision rule generally accepts 0.7 as a benchmark value for Cronbach's alpha.

3.11 Confidentiality, anonymity and other ethical considerations

The practices of confidentiality and anonymity are used to protect the privacy of participants in a study (Bhandari 2021; Hoft 2021). It is important to consider ethical practices during data collection, handling, analysis, and reporting. For this study, the identities of all respondents were not published; that is, the names, photographs, or any identifying information were treated as highly confidential. The data collected in the study were not controversial. Completed questionnaires are currently stored safely and will be stored for a period of five years in a locked cupboard in the supervisor's office. After the five-year period (from the date of data collection) lapses, these questionnaires will be shredded.

The study maintained the ethical principle of self-determination, where respondents were treated as autonomous individuals. All respondents were informed of this

principle before they could participate in the study. They were also informed about the study, its voluntary nature and their freedom to participate or withdraw from the study at any time. Contact details of the researcher, the supervisor and the DUT-IREC were provided to each respondent, who was advised to use the details in case of any complaint against the researcher. All research ethics guidelines outlined by the DUT-IREC were strictly followed. The study received full research ethics clearance from DUT-IREC (IREC 219/23), and this is provided in Appendix 1.

3.12 Conclusion

A case study research was conducted based on improving household satisfaction with RDP houses in the city of Durban. The data collection and analysis process for this study has been set out in this chapter. The instruments, research philosophy, research approach, research design, study site, population and study sample were outlined. This study employed the quantitative approach with the aim of potentially determining the number of the population's needs and improving satisfaction with the government-provided RDP houses.

CHAPTER 4

RESULTS

4.1 Introduction

The findings of the research study are discussed in this section. Four main objectives were to be achieved through the study. Firstly, the study determined the beneficiaries' satisfaction with the structural components of the RDP houses they received from the government. Secondly, the study intended to establish the common challenges experienced by households occupying RDP houses in the city of Durban. Thirdly, the study aimed to identify the key factors that will improve household satisfaction with RDP houses. Finally, the study sought to provide policy recommendations that may improve satisfaction with low-cost houses provided by the government. A quantitative research approach was used to achieve these objectives. A survey was administered to obtain quantitative data from households within the eThekwini Municipality. The descriptive statistics of the data collected are discussed in the first section of this chapter, followed by the quantitative results of the household survey. The study adopted the Stata software version 16 for data analysis.

4.2 Descriptive statistics

A survey of 375 households was carried out using random sampling in six selected areas within eThekwini Municipality, which are uMlazi, Malukazi, Ntuzuma, Mqhawe, Nazareth and iTshelimnyama. The questionnaire was self-designed and administered by the researcher during the period January to April 2024. The questionnaire was developed in the English language and also translated into isiZulu for the benefit of participants who were conversant in English. Table 4.1 presents the descriptive statistics of the collected information.

Table 4.1: Descriptive statistics of respondents (n = 375)

Variable	Category	Frequency	%	Mean	SD	Min.	Max
Gender	*Male*	170	45				
	Female	202	54				
	Other	3	0.8				
Race	*African*	327	87				
	White	2	1				
	Indian	12	3				
	Coloured	34	9				
Education	*No formal school*	16	4				
	Primary school	56	15				
	High school	199	53				
	Diploma	75	20				
	Degree	19	5				
	Postgraduate	10	2				
Type of RDP house	*Standalone*	271	72				
	Double storey	104	28				
Ownership	*Owner*	308	82				
	Tenant	67	18				
Age (years)		371		44	16	19	82
Household size (No.)		375		5	2	1	15
Monthly income (ZAR)		370		3 906	2 980	0	20000
Years lived in RDP		374		11	6	2	35

Note: % is the percentage of respondents; SD is the standard deviation; Min is minimum; Max is maximum

Source: Author's own table

Table 4.1 shows that female respondents comprised the majority of those who participated in the study at 54%. The average age for the sample was 44 years, with the oldest respondent being 82 years old, while the youngest was 19 years old. Generally, this indicates that no minors were surveyed, and on average, respondents were old enough to provide reliable information towards achieving the objectives of

the study. Equally, with an average occupation of a period of 11 years, the respondents had sufficient information to share reliable experiences, which is expected to improve the robustness and reliability of the study's results. The highest level of education was 53% in high school, while 4% had no formal school education. Further, 82% of the respondents owned the RDP houses, while 18% were tenants. Manomano (2013) cites numerous reports indicating that a significant number of beneficiaries choose to rent their houses due to their dissatisfaction with the quality and the fact that they are located on the outskirts of the urban areas, far from employment opportunities. The average household monthly income for the respondents was R3 906, indicating that they were low-income earners, which is consistent with the expectations of being a beneficiary of an RDP house. Most of the respondents lived in standalone houses (72%), which is in line with the reality that the government provides more standalone RDP houses than double-storey houses.

4.3 Household satisfaction with the RDP houses

The respondents were asked to express their views on their satisfaction with the RDP house in which they live. Ten (10) questions relating to satisfaction were asked using a Likert scale that ranged from strongly agree, agree and disagree to strongly disagree. The questions focused on the physical structure of the RDP house, including the wall condition, space, and ventilation, as well as the general living conditions, such as the distance to amenities and the maintenance of the house.

4.3.1 Frequency distribution of responses on satisfaction with RDP houses

This section delves into the responses of occupants regarding their satisfaction with the RDP houses received from the government. Satisfaction implies a sense of pleasure or disappointment. A company's ability to meet customer expectations when offering a service can be measured by customer satisfaction. The wants of customers before using services are compared to the outcomes of customer perceptions to measure customer happiness with a service. Customer perceptions will influence the

level of satisfaction that can be achieved (Romadhoni et al. 2020). For the purpose of this study, in order to gauge the degree of the occupants' satisfaction with their RDP houses, ten questions were asked about their external surroundings and physical structure to inform policymakers and the government. Figure 4.1 presents frequency results based on respondents' opinions.

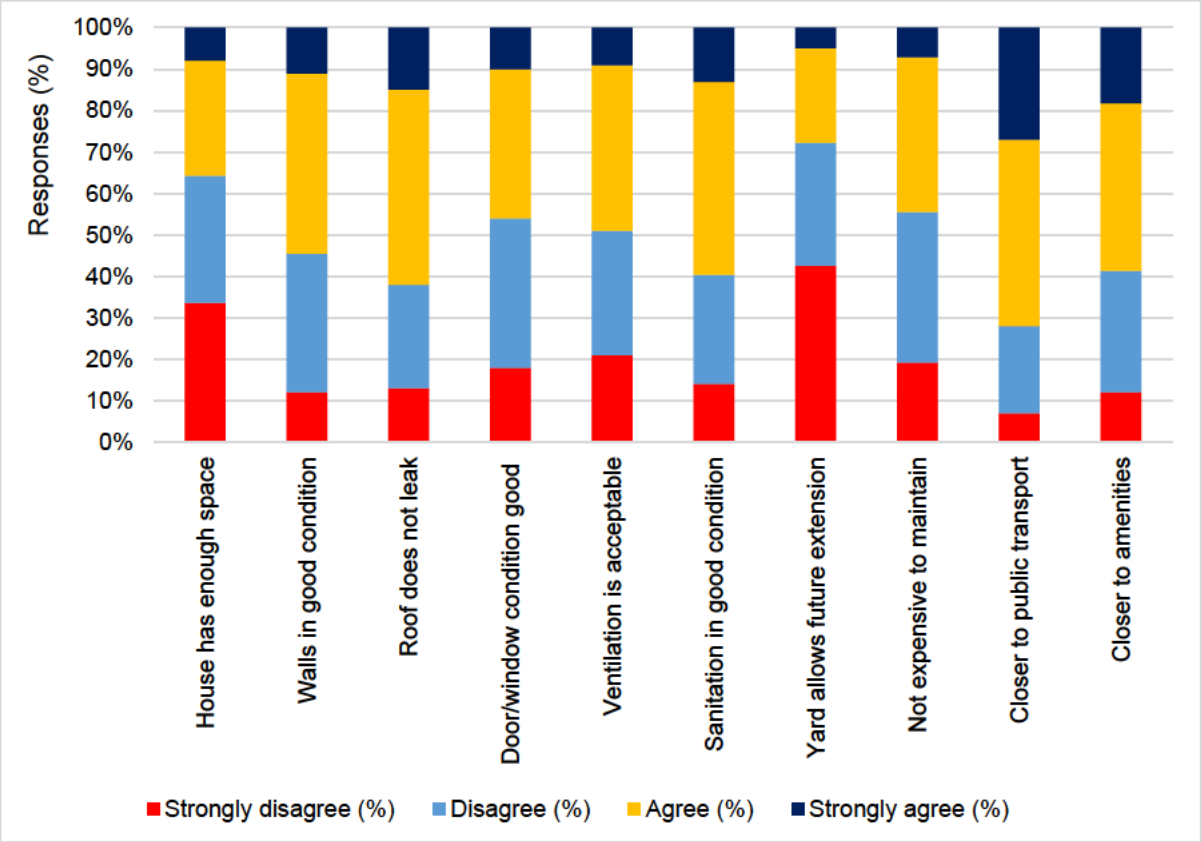

Figure 4.1: Responses on household satisfaction with RDP houses (n=375)

Source: Author's own diagram

About 34% of respondents strongly disagreed that the house has enough space, while only 8% strongly agreed. A substantial 30% of the respondents disagreed with the acceptability of the ventilation. The literature revealed that the critical issues among the complaints from occupants are that the land is inadequate, the houses are too small and have poor ventilation, and sanitation is poor (Manomano 2022; Mbatha 2019; Mashwama et al. 2018). In contrast, 23% of the respondents agreed that the yard allows for future extensions to their RDP houses, but 43% strongly disagreed. Many beneficiaries of RDP houses go to the housing office and request new paint and

bathroom fittings because they cannot afford them for themselves. Zunguzane et al. (2012) concur that common challenges in the low-income sector are houses with high maintenance costs. Equally, in this study, 37% of the respondents agreed that it is expensive to maintain their RDP houses, while 36% disagreed that it is expensive to maintain the RDP houses.

Furthermore, 45% of the respondents indicated that their RDP houses are closer to public transport. However, Mkhwanazi et al. (2019) reveal most complaints include the poor location of the RDP houses, which they are built far away on uninhabited land, which makes it difficult to access public transport to work, medical facilities and schools. About 30% indicated disagreement with the condition of the walls. Arrey (2016) noted that beneficiaries of RDP houses expressed concerns about the quality of subsidised housing, with most indicating that the walls of the RDP houses are weak and less durable.

4.3.2 Reliability of the Likert scale questions on household satisfaction

The discussion on reliability and its importance is presented here. Reliability is defined as the probability that a system will fulfil its purpose for a specific period in accordance with certain conditions. Researchers may use a combination of one or more of three types of significance, namely statistical, practical, and clinical, when interpreting their results. Poor score reliability will compromise the ability to achieve all three levels of significance (statistical, practical, and clinical). Statistical significance assesses the probability or likelihood of the sample. Empirical significance quantifies the degree to which sample results differ from the null hypothesis. Lastly, the number of participants who crossed the boundaries of diagnostic categories like depression or reading disability assesses the clinical significance (Breneman et al. 2022).

The literature states that the test results' reliability is not dependent on chance factors. Researchers are well aware of the importance of the reliability of measures obtained, as it enables us to measure something consistently through test scores. Researchers should provide detailed estimates of relevant reliabilities for each reported total score,

sub-score, or combined score to enable the test user to assess the accuracy of the scores for their intended use (Breneman et al. 2022; Morrow and Jackson 1993).

The Cronbach Alpha test was used in this study to measure reliability. Attitudes, norms, and beliefs are among the numerous concepts of interest to sociologists that are not clearly known. In the survey responses, serving as indicators of these psychological concepts, suggest a variety of measurement methods and scale procedures. The Likert group introduced a scale of summated ratings in 1932, and people commonly use Cronbach's alpha to assess the reliability of this scale (Vaske et al. 2016). A questionnaire was created for this study. The questions contained in the second section are closed-ended, with some of them based on a 4-point Likert scale. Vaske et al. (2016) concur that alpha measures the degree to which answers to the questions are consistent with each other. In a set of survey responses, alpha estimates the proportion of variability that is systematic or consistent. According to Helfi et al. (2019), if the indicator achieves a convergent validity value of 0.7 and the tolerated external loading values exceed 0.5, it is considered valid. The Cronbach’s alpha rule of thumb is a value of 0.60, which means the decision is considered reliable. Table 4.2 presents the Cronbach’s alpha results for household satisfaction.

Table 4.2: Cronbach's alpha results for the questions on household satisfaction

Item	Obs.	Sign	Item-test correlation	Item-rest correlation	Average interitem correlation	Alpha
House has enough space	375	+	0.613	0.497	0.258	0.768
Walls in good condition	375	+	0.626	0.490	0.268	0.767
Roof does not leak	375	+	0.539	0.389	0.271	0.770
Door/window condition good	375	+	0.621	0.497	0.267	0.767
Ventilation is acceptable	375	+	0.621	0.497	0.267	0.767
Sanitation in good condition	375	+	0.527	0.374	0.273	0.772
Yard allows future extension	375	+	0.580	0.448	0.263	0.763
Not expensive to maintain	375	+	0.619	0.482	0.268	0.768
Closer to public transport	375	+	0.552	0.414	0.278	0.777
Closer to amenities	375	+	0.556	0.418	0.279	0.778
Test scale					**0.263**	**0.781**

Source: Author's own table

The table above shows the results of the data reliability test with an alpha coefficient above 0.75 and declares all items as reliable because they are above Cronbach's alpha rule of thumb value of 0.70. The observed scores indicate a high significance of all studied variables, indicating a strong influence on the RDP house occupants' overall satisfaction with the RDP house.

4.3.3 Testing sampling adequacy of household satisfaction questions

This section presents a discussion on the sampling adequacy. Measurement of the adequacy of a sample in a research study is significant, as this is evidence of how adequate the sample of the study is. For the purposes of this study, the Kaiser-Meyer-Olkin (KMO) test was used to test the adequacy of the sample. The proportion of variability in a variable that can be attributed to underlying variables is explained by

this test statistic. The KMO test is a measure intended to assess the suitability of data for factor analysis purposes. The sampling adequacy of each variable in the model and its complete model is measured in the test. The KMO's value ranges from 0 to 1, where a value that is equal to or greater than 0.8 indicates that the sample is sufficient. Values greater than 0.7 but less than 0.8 are middling, while values greater than 0.6 but less than 0.7 are considered mediocre. Factor analysis will not be a useful technique to analyse data if the KMO value is less than 0.5 (Shrestha 2021; Alemzero et al. 2020). Table 4.3 presents the KMO sampling adequacy results for household satisfaction with the RDP houses.

Table 4.3: KMO sampling adequacy results for household satisfaction

Variable	KMO
House has enough space	0.788
Walls in good condition	0.756
Roof does not leak	0.868
Door/window condition good	0.964
Ventilation is acceptable	0.893
Sanitation in good condition	0.897
Yard allows future extension	0.968
Not expensive to maintain	0.830
Closer to public transport	0.793
Closer to amenities	0.795
Overall	**0.888**

Source: Author's own table

The results in Table 4.3 present variables with KMO values above 0.5, confirming the adoption of factor analysis technique as a useful estimation technique. All of these variables relate to the RDP house's physical structure and external environment. According to Moolla et al. (2011), the government asserts that these RDP house development projects will include basic services (electricity, sewerage, and running

water) and amenities (clinics and schools), which are essential to any new community. However, many respondents expressed dissatisfaction with these, as evidenced by the strong KMO values of 0.5.

4.3.4 PCA of household satisfaction with RDP houses

Statistical models are used to analyse quantitative data. Specifically for this study, principal component analysis is one of the factor analysis approaches used in the literature. Hasan and Abudulazeez (2021) state that principal component analysis is a method to reduce the dimensionality of datasets. It improves interpretation without losing much information. This is achieved by creating new covariates that are unrelated to each other. The eigenvalue solution problem can be reduced by identifying new variables or main components. Furthermore, the benefits of the principal component analysis include its ability to overcome the duplication of sets. It also helps to reduce the complexity of calculations and improve their efficiency. Principal component analysis makes it easier to visualise data and provides a very broad tool for analysing datasets that may exist.

According to Foster et al. (2017) and Hasan and Abudulazeez (2021), to comprehend eigenvalues, we must first understand that there are two types of variances: common and unique. The amount of variance that is associated with a set of items is known as the common variance. There will be a substantial amount of variance among items that are highly correlated. On the other hand, a unique variance is any part of the variance that is not common. Eigenvalues represent the total variance that a single main component can describe. In theory, they can be positive or not, but in practice, they explain the variance. It is a favourable sign when the eigenvalue is greater than zero. Negative eigenvalues imply that the model has been conditioned irreversibly since variance should not be negative. Eigenvalues below zero indicate item multicollinearity, as the first component can account for all variances. Table 4.4 presents the results of the principal component analysis of household satisfaction.

Table 4.4: PCA results of household satisfaction variables (n = 375)

Component	Eigenvalue	Difference	Proportion	Cumulative
Component 1	3.398	1.914	0.339	34
Component 2	1.474	0.497	0.157	49
Component 3	0.986	0.159	0.197	58
Component 4	0.837	0.117	0.182	67
Component 5	0.720	0.023	0.072	74
Component 6	0.798	0.138	0.079	81
Component 7	0.669	0.517	0.166	87
Component 8	0.528	0.055	0.058	92
Component 9	0.573	0.128	0.058	96
Component 10	0.466		0.046	1.000

Source: Author's own table

The results in this study revealed that only two components are significant as they contain eigenvalues greater than 1. These two components are in Table 4.4. Component 1 is the 'house has enough space', while Component 2 is the 'walls are in good condition'. Previously, it was revealed that 34% of the respondents indicated they strongly disagreed that the RDP houses have enough space. The average size of the RDP house should be 40 square metres, according to the standards set by the NHBRC (2019). Un-Habitat (2009) states adequate housing constitutes more than just four walls of a room and a roof over your head. In addition, it is crucial to meet the physiological need for privacy and space. Many respondents expected houses that would accommodate larger families or more than four members. Component 2 pertains to the condition of the walls. About 43% of the respondents indicated they agree that the condition of the walls in RDP houses is good. Table 4.5 presents the results of component loadings effect on household satisfaction.

Table 4.5: Component loadings for household satisfaction variables (n = 375)

Variable	Component 1	Component 2	Unexplained
House has enough space	0.344		0.496
Walls in good condition	0.346		0.571
Roof does not leak			0.723
Door/window condition good	0.355		0.519
Ventilation is acceptable	0.356		0.471
Sanitation in good condition		-0.325	0.599
Yard allows future extension	0.312		0.549
Not expensive to maintain	0.334		0.597
Closer to public transport		0.539	0.303
Closer to amenities		0.524	0.329

Source: Author's own table

The variables in Table 4.5 under component 1 indicate the level of satisfaction with the space, wall condition, and roof leaks, all of which are indicators of the physical structure of the RDP house. Component 2 includes variables related to the external structure, specifically public transport and the proximity of amenities to the RDP house. Residents consider proximity to basic services and amenities to be just as important to their satisfaction as the appearance of the RDP house. The presence of certain neighbourhood amenities such as schools, workplaces and supermarkets makes it easier to travel to many of the places you need to go to for daily activities, thereby linking the availability of public transportation and extra amenities. This means that you need transportation to get to these places. Most RDP houses are built in hazardous locations on the edges of the city, which makes the daily lives of occupants extremely hard. Additionally, the distance of the RDP houses from basic services and amenities poses a challenge for those who rely on public transportation. The beneficiaries who own the RDP houses built in peripheral localities of rural areas suffer the highest travel burdens due to the lack of livelihood-enhancing amenities in a rural environment.

According to Manomano (2013), Aigbavboa (2018), and Thwala (2018), RDP houses are mainly located on the outskirts of cities, in areas where large quantities of land are available at cheaper prices. This has caused great difficulty for beneficiaries when they travel to work, school, and even medical care centres. A good place to live should have enough space, be affordable, provide basic infrastructure and services such as water supply, sanitation, and plumbing system management, be secure in your tenure, be strong and safe, have effective ventilation and heating systems, be easily accessible, and be in close proximity to healthcare centres, workplaces, schools, libraries, and shopping centres. A good place to live in should also have a good quality environment and welfare components. The literature confirms that most cities in South Africa have unstable geographical structures, which leaves low-income citizens vulnerable and far from employment opportunities and amenities. This results in a long journey time for accessing employment opportunities and engaging in additional activities, and possibly higher transport costs (Van der Merwe and Krygsman 2020).

Furthermore, in this study, the results revealed that variables in component 1, namely space, wall condition, doors and windows, ventilation, house extension and maintenance, are elements that represent the physical structure of the RDP house and also contribute to the overall satisfaction with the RDP house. Khoza (2021) states that the availability of sufficient space in the building is one of the most important factors affecting the quality of living conditions. In South Africa, beneficiaries of RDP houses have complained about the insufficient size and location of dwellings. Moolla (2011) also concurs that due to poor materials and poor workmanship, roofs, walls, doors, floors and windows are mostly reported to be of low quality and falling apart without external forces.

4.4 Challenges experienced by occupants of RDP houses

This section discusses the challenges experienced by occupants of RDP houses. Eighteen (18) questions concerning challenges experienced were asked using dichotomous (yes/no) questions. The first eleven questions concerned the physical structure of the RDP houses (the floor condition, door installation, and wall condition). The remaining seven (7) questions pertained to the external structure (retaining wall

and weather conditions that cause floods), as well as basic services challenges (water supply, electricity supply, refuse collection) and general living conditions (access to amenities).

4.4.1 Frequency of responses on challenges faced by RDP occupants

The responses to the challenges faced by the occupants of the RDP houses are classified into two categories: the structural challenges of the physical building's structure and other challenges related to the external structure. This subsection discusses challenges faced by RDP occupants. It is organised into four subsections. The first subsection presents responses related to the building's structural challenges, while the responses on other challenges related to the building's external structure are argued in the second subsection. The dependability of the questions related to the challenges faced by RDP occupants is outlined in subsection three. Subsequently, subsection four discusses the principal component analysis of the challenges that RDP occupants face.

4.4.1.1 Frequency distribution of responses to the buildings' structural challenges

This section provides a discussion on the building's structural challenges. The yes or no questions to the first eleven (11) questions explored and sought the opinions of householders' experiences of common structural challenges with the RDP houses. This was in support of the study's second objective, which aimed at identifying common challenges faced by the RDP houses in the city of Durban. Structural problems can be classified as anything that threatens the structural stability of a residential building. The determinants of structural problems differ from poor construction, poor design and structural defects. Lack of motivation, control and coordination among the principal contractor, consultants and clients may contribute to poor construction work (Amoah et al. 2022; Magenis 2022. Figure 4.2 presents the frequency distribution of responses to the building's structural challenges.

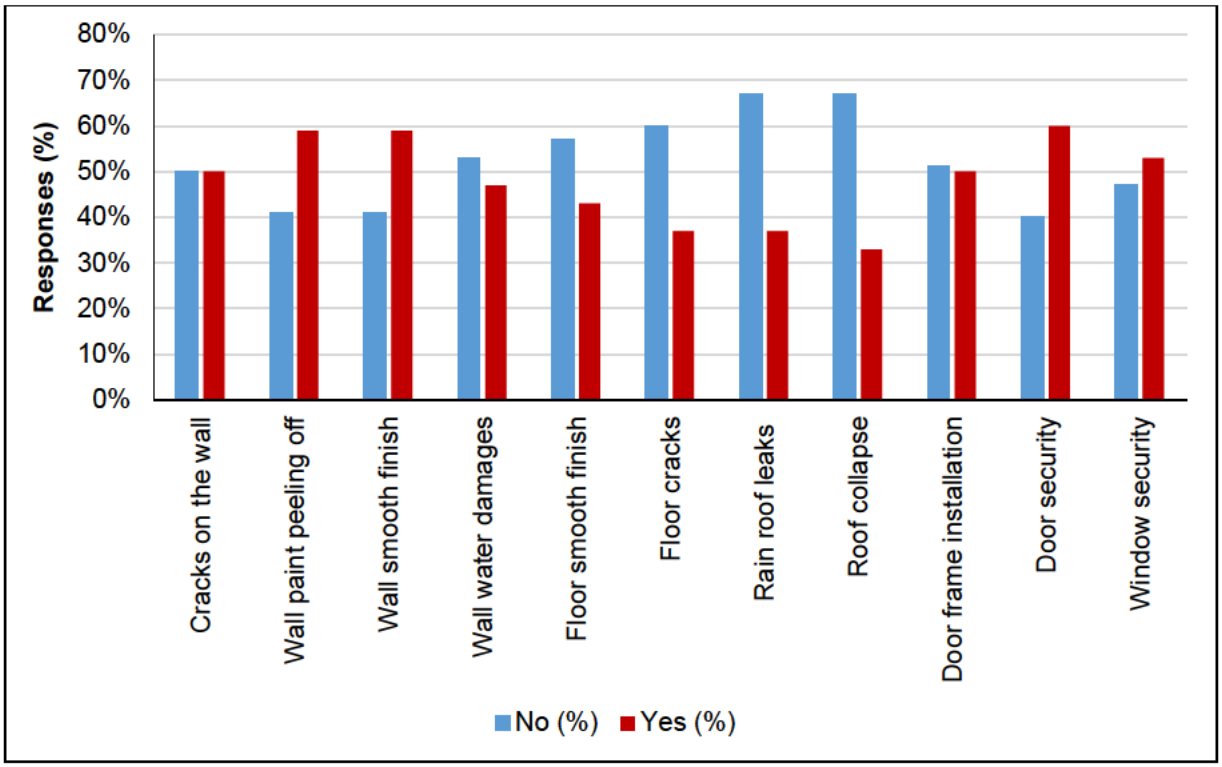

Figure 4.2: Frequency of responses on challenges faced by RDP occupants

Source: Author's own diagram

Fifty per cent of the respondents indicated that their RDP houses had cracks on the walls. Respondents were also dissatisfied with the paint on the walls of the RDP houses, as approximately 60% indicated that the paint on the walls was peeling off. Moving along, about 50% responded yes to the door frames not being installed properly. According to Amoah et al. (2022), pre-existing RDP housing units exhibit poor quality, including deteriorated structural frames, lack of plaster finishes, cracked floors, and inadequate quality management. The findings of this study revealed that most of the occupants felt unsafe in the RDP houses as the doors were not installed securely. Sixty per cent of the respondents agreed that their doors were not strong enough for security, and 63% indicated that there were no roof leaks when it rained. Finally, 60% of the occupants suggested that the walls of their RDP houses did not have a smooth finish.

4.4.1.2 Frequency distribution of responses on other challenges

Other challenges consist of seven (7) questions related to the external structure of the RDP building as additional challenges. This section discusses other challenges consisting of seven (7) questions related to the RDP houses' external structure. These are the final seven yes or no questions that focus on the external structure and environment of the RDP houses and are based on the difficulties that occupants face. Some of the complaints concern the availability of essential utilities like electricity and water, while others concern the distance between the RDP houses and other facilities. The literature revealed that some complaints about RDP houses stem from their construction on the outskirts of cities, away from employment opportunities and amenities. Figure 4.3 demonstrates these other challenges.

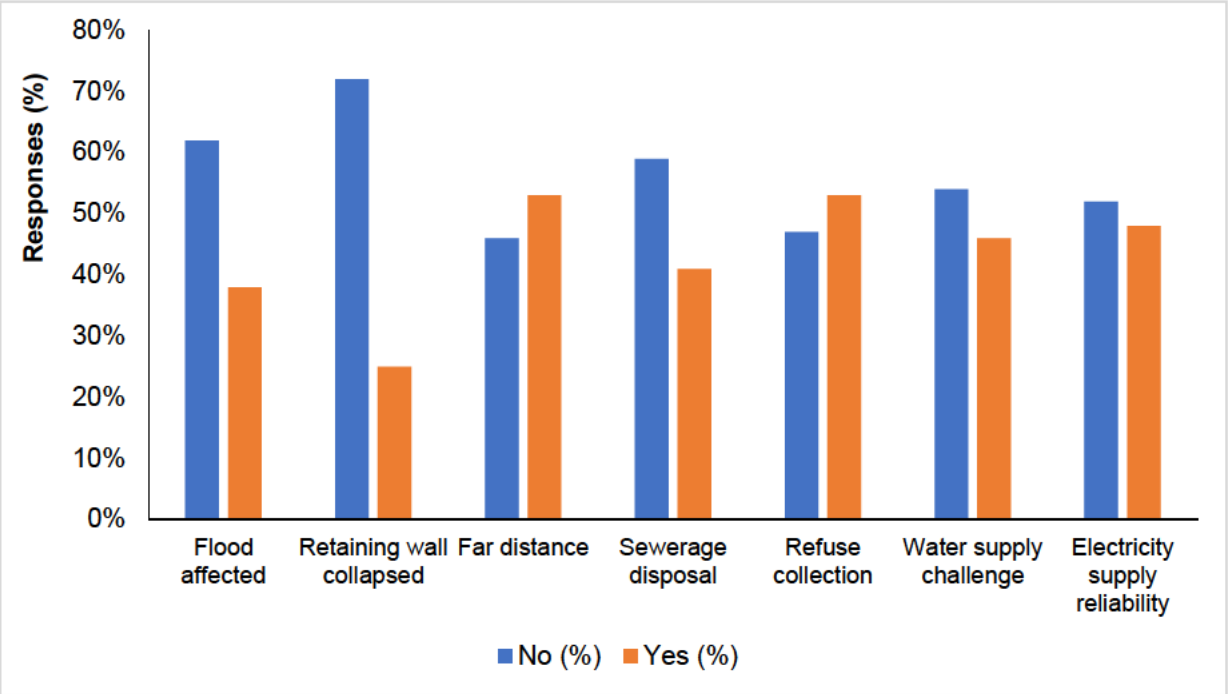

Figure 4.3: Frequency distribution of responses on other challenges

Source: Author's own diagram

Sixty per cent of the respondents reported that their RDP houses had not been affected by floods, while 54% revealed that their houses were located far from amenities. The respondents are generally dissatisfied with refuse collection services in their neighbourhood. Finally, the occupants expressed additional challenges related

to water and electricity, with approximately 46% revealing their neighbourhood's water supply was a problem. In terms of electricity supply, 52% of the respondents indicated that they had never encountered problems with it. During on-site visits, some respondents expressed deep concerns about their safety and the possibility of their homes catching fire due to illegal electricity connections, as the government failed to connect electricity prior to handing over these houses.

4.4.2 Reliability of questions on challenges faced by RDP occupants

This section delves into the reliability of questions related to the challenges experienced by the occupants of RDP houses. Silipigni Connaway and Radford (2017) state that the degree to which the instrument accurately and consistently measures whatever it is measuring can be defined as reliability. The literature provides a variety of measurement techniques used to assess and measure the reliability of the instrument's results, with the test-retest correlation being used frequently. Measures based on multiple indicators shall be subject to internal reliability. When a concept has more than one item measure, the answers of the respondent to each question are aggregated in order to form an aggregate figure for that concept. It is vital to make certain that all indicators are related to each other. The Cronbach's alpha, which uses the split-half method, is a test of internal reliability, and it calculates the average of potential split-half reliability coefficients. The computed alpha coefficient will vary between 1, which indicates perfect internal reliability, and 0, indicating no internal reliability. A sufficient and acceptable internal reliability score is between 0.7 and 0.8 (Dos Santos et al. 2021). Table 4.6 presents the Cronbach's alpha results for challenges faced by occupants of RDP houses.

Table 4.6: Cronbach's alpha results on challenges faced by occupants of RDP houses

Item	Obs.	Sign	Item-test correlation	Item-rest correlation	Average interitem correlation	Alpha
Cracks on the wall	375	+	0.668	0.598	0.189	0.799
Wall paint peeling off	375	+	0.608	0.530	0.193	0.803
Wall smooth finish	375	+	0.538	0.451	0.198	0.807
Wall water damages	375	+	0.595	0.515	0.194	0.804
Floor smooth finish	375	+	0.564	0.480	0.196	0.805
Floor cracks	375	+	0.600	0.521	0.194	0.803
Rain roof leak	375	+	0.517	0.428	0.199	0.809
Roof collapse	375	+	0.569	0.486	0.196	0.805
Door frame installation	375	+	0.504	0.413	0.200	0.809
Door security	375	+	0.521	0.432	0.199	0.808
Window security	375	+	0.474	0.380	0.202	0.811
Flood affected	375	+	0.515	0.425	0.199	0.809
Retaining wall collapsed	375	+	0.374	0.272	0.208	0.817
Far distance	375	+	0.209	0.098	0.219	0.827
Sewerage disposal	375	+	0.446	0.350	0.204	0.813
Refuse collection	375	+	0.369	0.266	0.209	0.818
Water supply challenge	375	+	0.404	0.304	0.206	0.816
Electricity supply reliability	375	+	0.430	0.332	0.205	0.814
Test scale					**0.201**	**0.819**

Source: Author's own table

Table 4.6 illustrates the results of the Cronbach's alpha reliability, with an alpha score of 0.7, the stipulated minimum score required for an accurate measurement of the data collected. For instance, the majority of the RDP house occupants who reported visible cracks on the wall had an alpha score of 0.898, and the alpha score for those who indicated water damages on the wall was 0.804, while those who indicated a water supply challenge had an alpha of 0.816. A strong correlation between all the variables analysed is shown in the reported scores.

4.4.3 Testing sampling adequacy of challenges faced by RDP occupants

This section discusses the adequacy of the sample. It is important to measure the adequacy of the sample in a research study, as this proves that the sample is adequate. The results are based on the eighteen (18) variables, which represent the challenges experienced by occupants of RDP houses. Table 4.7 illustrates the sampling adequacy of challenges faced by RDP occupants.

Table 4.7: Testing sampling adequacy of challenges faced by RDP occupants

Variable	KMO
Cracks on the wall	0.834
Paint peeling off	0.881
Wall finishes	0.795
Wall water damages	0.795
Floor finishes	0.752
Floor cracks	0.755
Rain roof leakages	0.787
Roof collapse	0.826
Door frame	0.792
Door security	0.782
Window security	0.833
Flood affected	0.827
Retaining wall collapse	0.869
Far distance	0.628
Sewerage disposal	0.805
Refuse collection	0.813
Water supply challenge	0.771
Electricity supply challenge	0.756
Overall	**0.803**

Source: Author's own diagram

The adequacy of the sample was tested using the Kaiser Meyer Olkin (KMO) test. The test assesses the sampling quality of each variable in the model. Shrestha (2021) states that when the average extracted variance is larger than or equal to 0.5, the

sampling is considered sufficient. For instance, the table reveals that the figure of occupants reporting rain roof leakages in their RDP house is 0.787, whereas those who noted issues with paint peeling stand at 0.881. The score for occupants concerned about door security was 0.782, while the figure for window security reached 0.833. Additionally, 0.628 of respondents indicated that the distance to amenities from their RDP house was far, and 0.771 reported to be facing water supply challenges, whilst those who indicated challenges with floor cracks stood at 0.755. All the variables of challenges experienced by the occupants of RDP houses were measured for sampling adequacy and found to be sufficient, as the results received were above 0.5, which is the set score for sufficient adequacy. These results are strong, surpassing the KMO threshold of greater than 0.5.

4.4.4 Principal component analysis of challenges faced by RDP occupants

4.4.4.1 PCA results

This section provides a discussion about the results of the data on challenges encountered by the occupants of RDP houses. There are a variety of methods to analyse quantitative data; however, for this study, the principal component analysis was selected. This method is commonly known for the ability to reduce the number that can be analysed when there is a large number of variables. Eigenvalues are the total variance that can be described in a single main principal component. It is a favourable indication when the eigenvalue is higher than zero (Foster et al. 2017; Hasan and Abudulazeez 2021).The PCF model can be performed either with unrotated or rotated components. While both approaches are useful, if components are not rotated, the effect of the principal component analysis method will be diminished. This would then imply that the additional components must be chosen to explain the variance in the data (Nurimbetov et al. 2022; Valsalan et al. 2020). This study estimates the determinants of water supply challenges using an unrotated PCF Model. Table 4.8 presents the principal component analysis of challenges faced by RDP occupants.

Table 4.8: PCA results of challenges faced by RDP occupants

Component	Eigenvalue	Difference	Proportion	Cumulative
Component 1	4.685	2.682	0.260	26
Component 2	2.003	0.467	0.111	37
Component 3	1.546	0.301	0.086	46
Component 4	1.244	0.146	0.069	53
Component 5	1.099	0.173	0.061	59
Component 6	0.926	0.066	0.051	64
Component 7	0.859	0.059	0.048	69
Component 8	0.800	0.041	0.045	73
Component 9	0.759	0.128	0.042	77
Component 10	0.632	0.373	0.035	81
Component 11	0.595	0.047	0.033	84
Component 12	0.548	0.059	0.031	87
Component 13	0.489	0.044	0.027	90
Component 14	0.445	0.311	0.025	92
Component 15	0.414	0.059	0.023	95
Component 16	0.355	0.027	0.019	97
Component 17	0.328	0.059	0.018	99
Component 18	0.269		0.015	1

Source: Author's own table

There are eighteen principal components in the table that represent challenges with the RDP houses. However, only the first five hold significant value as they have an eigenvalue higher than zero. These components include cracks on the wall (4.685), paint peeling off (2.003), wall finishes (1.546), wall water damage (1.244), and floor finishes (1.099). All these components are linked to the physical structure of the house and indicate a highly significant correlation.

4.4.4.2 Component loadings

The components loading with high values, namely doorframe, door security and window security, indicate a major security concern as the majority of the respondents indicated a high level of dissatisfaction. Conversely, components such as sewerage disposal, water supply challenge and electricity supply are linked to basic services. The researcher recommends an improvement in these services to increase satisfaction with the RDP houses. The government also needs to improve the location of the RDP houses to ensure they are constructed closer to employment opportunities. Table 4.9 presents the component loadings of the challenges of RDP houses.

Table 4.9: Component loadings of challenges faced by RDP occupants

Variable	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Unexplained
Cracks on the wall	0.330					0.330
Wall paint peeling off						0.463
Wall smooth finishes				-0.364		0.466
Wall water damages						0.367
Floor finishes					0.468	0.265
Floor cracks					0.566	0.231
Rain roof leaks			-0.314			0.389
Roof collapse						0.446
Door frame		0.457				0.309
Door security		0.453				0.311
Window security		0.459				0.333
Flood affected						0.574
Retaining wall collapse						0.696
Far distance				0.591		0.453
Sewerage disposal			0.326			0.432
Refuse collection				0.383		0.599
Water supply			0.502			0.392
Electricity supply reliability			0.525			0.369

Source: Author's own table

Table 4.9 presents five components of the major challenges faced by RDP house occupants. Component 1 is related to cracks on the wall. This pertains to a defect with the RDP houses. Numerous factors contribute to this kind of defect, and the majority of occupants expressed fear for their safety because the house's structure is at risk and the susceptibility to collapsing. Further, Component 2 encompasses door frame, door security and window security issues. Since these components are designed to keep the house safe and secure from danger, they are related to the security problem. If these components are unsecured, then occupants' lives are at risk.

Component 3, which deals with fundamental services, includes issues related to water supply, sewerage disposal and the dependability of electricity supply. Occupants expect the local government to supply these services. Sewerage disposal is the release of human waste, and many occupants complained that they were given RDP houses without sewerage or water pipes. They further complained that they were given houses without electricity, which prompted them to illegally connect electricity to their homes. Additionally, component 4 included distance from amenities and refuse collection, which all relate to the external environment of the RDP house. The occupants raised health concerns due to the proximity of accessing public transport from their RDP houses. Finally, floor finishes and cracks are elements from component 5, and they relate to the physical structure, for which occupants were highly dissatisfied due to it not being smooth and having visible cracks.

4.5 The relationship between biographical variables and non-satisfaction

It is important to establish whether socio-economic and biographical characteristics influence household satisfaction with RDP houses. Since the aim of this study is to maximise household satisfaction, it identifies key areas that occupants of RDP houses are not satisfied with. As explained earlier, respondents were asked 10 Likert scale questions that sought to establish their satisfaction with the physical structure and environment of the house. Respondents who chose either agree or strongly agree indicated that they were satisfied with the house's physical structure and environment. On the other hand, choosing either disagree or strongly disagree indicated that respondents were dissatisfied with the house's physical structure and environment. To

improve satisfaction, it is therefore imperative to focus on those who indicated dissatisfaction and establish the possible drivers of such dissatisfaction. The Likert scale contained four options (strongly agree, agree, disagree, and strongly disagree) and respondents were expected to select one option for each question.

The probit regression modelling technique was then used to establish the marginal effect of socio-economic biographic variables on each of the 10 Likert scale questions. It is important to emphasise that probit regression modelling fits the maximum likelihood with a dependent variable that is dichotomous (i.e., coded 0 and 1). However, dependent variables in this study took the form of a 4-point Likert scale and had to be converted to binary. To do this, the study followed Murwirapachena (2021) and Ngcobo, Reddy and Murwirapachena (2023) to convert the Likert scale data into binary. Since the focus is on responses where respondents indicated dissatisfaction with the physical structure and environment of the RDP house, we created a dummy variable for each of the 10 questions. The dummy variable had a value of 1 where respondents chose either disagree or strongly disagree (indicating dissatisfaction with the conditions) and 0 otherwise. Converting Likert scale outcomes in this manner created binary variables that necessitated the estimation of probit regression models. Therefore, 10 probit models were estimated, each for the 10 questions on the physical structure and environment of the RDP house. Table 4.10 shows the marginal effect of the socio-economic and biographic characteristics on the 10 variables regarding the physical structure and environment of the RDP houses.

Table 4.10: Average marginal effects of biographic characteristics on dissatisfaction

	Enough space	Wall condition	Roof leaks	Doors & windows	Acceptable ventilation	Sanitation condition	Future extension	Maintenance cost	Public transport	Important amenities
$Gender_{Female}$	-0.018	-0.077	-0.012	0.062	0.025	0.044	-0.019	0.039	-0.080*	0.016
	[0.046]	[0.051]	[0.051]	[0.051]	[0.051]	[0.050]	[0.048]	[0.051]	[0.046]	[0.051]
Age	0.0003	-0.001	0.001	0.004**	0.001	-0.005***	0.001	0.006***	0.004***	0.006***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
$Race_{Black}$	0.193**	0.057	-0.079	-0.056	0.190**	0.129	0.002	-0.208***	-0.057	-0.067
	[0.068]	[0.083]	[0.080]	[0.079]	[0.082]	[0.081]	[0.075]	[0.082]	[0.070]	[0.079]
HHsize	0.070***	0.018*	-0.003	0.005	0.034***	0.010	0.012	0.004	0.011	-0.001
	[0.009]	[0.011]	[0.011]	[0.011]	[0.010]	[0.010]	[0.010]	[0.011]	[0.010]	[0.011]
Edu	-0.016	-0.028	-0.020	-0.013	-0.007	-0.051*	-0.004	-0.029	-0.009	0.010
	[0.027]	[0.032]	[0.032]	[0.031]	[0.031]	[0.031]	[0.029]	[0.031]	[0.029]	[0.032]
Income	-9.87e-07	-9.05e-06	-0.000	3.09e-06	-7.32e-06	-0.000	0.000	-5.61e-07	0.00002***	0.00002*
	[8.05e-06]	[9.15e-06]	[9.32e-06]	[8.96e-06]	[9.04e-06]	[8.88e-06]	[8.61e-06]	[8.92e-06]	[8.04e-06]	[9.05e-06]
HType	-0.025	-0.134**	-0.108*	0.020	-0.068	-0.050	0.025	-0.029	-0.060	-0.005
	[0.052]	[0.058]	[0.058]	[0.058]	[0.058]	[0.058]	[0.054]	[0.059]	[0.054]	[0.059]
Duration	0.008*	0.010**	0.004	0.018***	0.007	0.009**	-0.004	-0.010**	0.001	0.002
	[0.004]	[0.005]	[0.004]	[0.005]	[0.005]	[0.005]	[0.004]	[0.005]	[0.004]	[0.005]
Ownership	-0.125**	0.082	0.032	0.020	-0.061	-0.102	-0.106*	-0.018	-0.025	0.002
	[0.059]	[0.070]	[0.071]	[0.070]	[0.071]	[0.070]	[0.062]	[0.070]	[0.065]	[0.071]
Obs.	366	366	366	366	366	366	366	366	366	366

*Note: ***, ** and * = statistical significance at 1%, 5% and 10% level, respectively. Standard errors in parenthesis [ ].*

Table 4.10 shows the averaged marginal effects of the 10 variables on the physical structure and environment of the RDP house. These results are based on the delta method, and the parameter estimates show the change in each variable following a change in each socio-economic biographic variable. These results are interpreted according to the statistical significance, sign and magnitude of each parameter estimate. Statistically significant variables are those whose marginal effects parameters have p-values less than 0.001 (i.e., significance at 1%), or are greater than 0.001 but less than 0.005 (i.e., significance at 5%), or is greater than 0.005 but less than 0.010 (i.e., significance at 10%). In the context of this study, a positive and statistically significant marginal effect value suggests a positive relationship between the biographic variable and dissatisfaction, while a negative and statistically significant marginal effect suggests otherwise.

The statistically marginal effect of the gender-female variable, which stands at -0.080 under 'public transport', suggests a significant negative impact. Specifically, a higher proportion of households had female occupants than male, indicating their dissatisfaction with the excessive use of public transport to and from their RDP houses. On the other hand, a statistically significant marginal effect of the variable age of 0.004 under 'doors and windows' suggests that occupants' dissatisfaction with the doors and windows in their RDP houses increases as their age increases. Meanwhile, a negative and statistically significant marginal effect of the variable Age of -0.005 under ‘Sanitation condition’ implies occupants are dissatisfied with the sanitation condition in the RDP house. More precisely, the increase in age would increase dissatisfaction by 0.5% for sanitation conditions.

As we proceed, there is a positive and statistically significant marginal effect of the variable age of 0.006 under ‘maintenance cost’. This indicates that as the age of occupants increases, their dissatisfaction with the maintenance costs of RDP houses also increases. The adults in the households with some means of income expressed their dissatisfaction with the high maintenance costs of RDP houses, citing their frequent need to use their own limited funds to repair house defects. Furthermore, as age increases, dissatisfaction with ‘public transport’ also increases by 0.004. The amenities available, such as supermarkets, workplaces, schools, and medical facilities, influence the decision to travel, leading to a notable 5% increase in

dissatisfaction with public transport due to its lack of proximity to their residence. The majority of respondents, who are pensioners, frequently express their dissatisfaction with public transport due to the inconvenience of walking long distances.

The positive and statistically significant marginal effect of age of 0.006 under "important amenities" indicates that 10% of people are unhappy with the proximity of important amenities to their RDP homes. The literature suggests that occupants of RDP houses express dissatisfaction with the location of their RDP houses, citing their poor quality and construction on the outskirts of cities, far from employment opportunities and important amenities (Mashwama et al. 2018). The study found a positive and statistically significant marginal effect of race, specifically the Black race, of 0.193 under the 'enough space' variable, suggesting that Black families were not satisfied with the space available in RDP houses. The majority of occupants criticised the lack of enough space, expressing their expectation that these RDP houses would be able to accommodate both small and large families. Therefore, those respondents with bigger families reported experiencing insufficient space in the RDP house.

The results also revealed a positive and statistically significant marginal effect of the variable race 0.190, on ‘acceptable ventilation’; the majority of the Black families were likely to be dissatisfied with the ventilation of the RDP houses; they disagreed that there is acceptable ventilation. As the number of Black family members increases, the dissatisfaction with ventilation also increases by 0.190. A negative and statistically significant marginal effect of the variable Race-black of -0.208 under ‘maintenance cost’ refers to the fact that occupants are dissatisfied with the maintenance costs of the house.

The positive and statistically significant marginal effect of the variable HHsize of 0.070 under the ‘enough space’ category suggests that larger households are likely to be dissatisfied with the space in the RDP houses. Thus, the larger the household size, the more likely the respondent will indicate that RDP houses do not have enough space. The direct translation of the marginal effect magnitude for this variable is such that a unit increase in household size increases household satisfaction by about 0.070. More specifically, a 10% increase in household size would increase dissatisfaction by about 0.7%. Another positive and statistically significant marginal effect of 0.018 in the

same variable, HHsize, under the 'wall condition' implies that households were dissatisfied with the wall condition of their RDP house. This variable's marginal effect indicates that a 10% increase in household size would result in a 0.18% increase in dissatisfaction. The variable HHsize, with a score of 0.034 under 'acceptable ventilation', indicates that occupants of RDP houses are not satisfied with the ventilation system, resulting in a 0.34% increase in dissatisfaction.

On the other hand, the variable education had a negative and statistically significant marginal effect of -0.051 under "sanitation condition," which means that educated owners of RDP houses were unhappy with the sanitation condition. Additionally, the positive and statistically significant marginal effect of the variable income of 0.00002 under 'public transport' signifies that respondents were dissatisfied with access to public transport from their RDP houses. More precisely, dissatisfaction would increase by 0.2%. The income variable shows a positive and statistically significant increase of 0.00002 under the 'Important amenities' category, suggesting that respondents are dissatisfied with the abundance of important amenities in their RDP houses. The direct interpretation of the variable's effect expresses dissatisfaction by 0.2%. However, a negative and statistically significant marginal effect of the variable HType 'household type' of -0.134 under 'wall condition' indicates that owners of stand-alone RDP houses were more dissatisfied with the wall condition than those who own double-storey RDP houses. Another negative effect of variable HType of -0.108 under 'Roof leaks' expresses that respondents in stand-alone RDP houses were dissatisfied with the roof leaks more than those living in double-storey RDP houses.

Additionally, the positive and statistically significant marginal effect of the variable duration of 0.008 under 'enough space' shows that households have lived for a certain period of time, and during that period, they were dissatisfied with the space in their RDP houses. For this variable, the direct translation of the marginal effect signifies that as the period lived in the RDP house increases, so does the dissatisfaction increase by 0.008. Precisely, a 10% increase in household duration increased the dissatisfaction by 0.8%. In the same duration variable, a score of 0.010 under 'wall condition' indicates that the respondents were not satisfied with the wall condition of the RDP house. This implies that a 10% increase in the duration of household dissatisfaction leads to a 0.10% increase in the level of dissatisfaction. As we proceed,

the positive and statistically marginal effect of the variable duration of 0.018 under 'doors and windows' indicates that households are experiencing dissatisfaction with the doors and windows of the RDP house. The dissatisfaction increased by 0.018.

Also, the same variable of duration but of 0.009 under "sanitation condition" shows that respondents are unhappy and dissatisfied by 0.009, especially with a 10% increase in duration, which made them 0.9% less satisfied. However, the occupant's dissatisfaction with the maintenance costs of the RDP houses stems from a negative and statistically significant marginal effect of the variable duration of 0.010 under maintenance costs. Lastly, a negative and statistically significant marginal effect of ownership of -0.125 under 'enough space' suggests owners of RDP houses were more likely to be dissatisfied with the space in RDP houses than tenants. Meanwhile, a negative and statistically significant marginal effect of the variable ownership of -0.106 under 'future extension' implies owners of RDP houses were more dissatisfied with the possibility of future extending their RDP house than tenants.

Housing is an essential and fundamental human right. Many housing legislations and policies have been introduced due to a high number of housing backlogs, in addition to other severe housing problems. Among these policies and legislation are the Housing Act of 1997, the White Paper, the National Housing Code, and the Reconstruction and Development Program (RDP). According to the National Housing Code (2009), the vision for housing is to create viable, socially and economically interconnected communities in areas that allow easy access to business opportunities, health, education, and social facilities. All citizens of South Africa will have access to secure housing with a guaranteed term of stay, ensuring personal and exterior privacy, as well as appropriate protection from the elements, potable water, adequate sanitation facilities, and the supply of electricity at home.

4.6 Conclusion

This examined the descriptive statistics and the frequency distribution and presented households' opinions on their satisfaction with RDP houses. The Cronbach alpha test was used to measure the reliability of the results. Additionally, the marginal effect was used to determine whether the selected variables were statistically significant. The beneficiaries of the RDP houses expressed dissatisfaction with factors such as the quality of the structure, accessibility to public transport and amenities, as well as the general environment of the RDP houses, which included acceptable ventilation and adequate space. The probit regression modelling technique was used to discover the marginal effect of the socio-economic biographic variables on each question about challenges with the RDP houses. Amenities and public transport were identified as key variables in the access model that have been found statistically significant. On the other hand, a quality model revealed three statistically significant variables: doors and windows, roof leaks and wall condition. Lastly, under general environment of the RDP house, enough space and acceptable ventilation were found to be statistically significant variables. The results of this study will influence and enable policy makers to rectify problems and develop solutions to improve household satisfaction with the RDP houses.

CHAPTER 5

CONCLUSION

5.1 Introduction

The previous chapter presented and discussed results for the study. This chapter is organised into five sections and concludes the study. Section 2 provides a summary of the study. Section 3 discusses policy implications and recommendations based on the study's findings. Section 4 discusses the study's limitations and proposes areas for future research. Section 5 concludes the chapter. Through these sections, the chapter provides a conclusion for the study.

5.2 Summary of the study

The aim of this study was to establish ways through which household satisfaction with government-provided houses could be improved in the city of Durban. Three objectives were formulated under the established aim. The first objective sought to determine the occupants' levels of satisfaction with low-cost, government-provided houses sampled across the city of Durban. The second objective sought to establish the most common challenges experienced by occupants of low-cost, government-provided houses in the city, while the final objective sought to establish the key factors that may improve satisfaction with low-cost, government-provided houses among the occupants of these houses. To achieve these objectives, the study adopted a descriptive quantitative research design with data collected from 375 occupants of low-cost, government-provided houses randomly sampled across three of the four spatial regions of the city of Durban. Subsequently, the principal component analysis approach was used as the primary technique to analyse the sample data. Findings were then summarised according to the objectives of the study.

First, two major components were reported under household satisfaction with low-cost, government-provided houses. The first component consisted of factors such as whether the house has enough space, the condition of the walls, the condition of the doors and windows, ventilation, a yard allowing for future extensions, and the cost associated with maintaining the property. On the other hand, the second component consisted of factors such as the condition of sanitation, proximity to public transport and amenities. Therefore, the first component was viewed as a physical structure, meaning it is the building of the RDP house, all elements which relate to the physical structure and how the space is arranged. These elements include the building's overall size and space, doors, ventilation system, windows, the state of its walls, the possibility of extending the house and the expenses of maintaining it. Each of these has a major impact on the degree of satisfaction. The literature stated that having enough room in a structure is one of the most crucial elements influencing the quality of living in South Africa; nevertheless, occupants have raised concerns over the location and size of their RDP houses (Khoza 2021).

The second component was viewed as the external environment of the RDP houses. For the purposes of this study, such elements are the state of the sanitation system and the availability of public transport and amenities. The state of the sanitation refers to both the internal and the external aspects of the house, with elements of sanitation such as water pipes within the house as well as sewerage pipes outside the house. The connection between public transport and amenities arises from the necessity of travelling to various amenities like schools, work and medical facilities, which rely on the availability and accessibility of public transport. These elements are basic services provided by the municipality, and enhancing them is essential to improving the occupants' quality of living.

Second, five components were reported for the most common challenges experienced by occupants of low-cost, government-provided houses. Component 1 consisted of cracked walls, which relate to the physical structure of the property. This is a direct translation of a defect present in the RDP houses, specifically the appearance of cracks on the walls. There are many drivers contributing to this defect, with the majority of the occupants expressing dissatisfaction with it due to its unpleasant appearance. Additionally, the majority of the occupants raised concerns that they felt unsafe, as it

was threatening the structure of the house and also posed a threat should the cracks lead to the structure collapsing. Proceeding to Component 2, it consisted of the door frame, door security and window security. These are associated with security concerns, as these elements are designed to keep the house and its occupants safe and secure from potential hazards. The occupants of a house would not feel safe and comfortable if the windows and doors of their houses were not secure, since their lives would be at risk from external factors such as natural disasters and criminal activities.

Additionally, component three encompasses basic services including of sewerage disposal, water supply challenges and electricity supply. The municipality aims to enhance people's living standards by providing basic services. The release of human waste is known as sewerage disposal, while water supply refers to the provision of water to households to contribute towards life and hygiene. Some occupants complained of water supply challenges at their residences, raised issues of water shortages and water shutdowns, and some stated that the government handed them RDP houses without water, as there were no water or sewerage pipes installed. Electricity is energy source, which is essential for various uses, including residential use and is significant in enhancing the quality of living. Apart from the loadshedding issue, the study found that some occupants of RDP houses faced electricity supply challenges as they were allocated houses without electricity and therefore resorted to illegally connecting to electricity.

Furthermore, component four includes factors related to the external structure and external environment of the RDP house, namely the far distance from amenities and refuse collection. The majority of occupants indicated that their houses were built far from amenities and that it was difficult to travel to these amenities. Some occupants also complained about the frequent refuse collection delays. Refuse collection refers to the collection of rubbish; these services are provided by the local municipality. Finally, component five consisted of factors related to the physical structure, specifically floor finishes and floor cracks; beneficiaries expressed their dissatisfaction with these.

The study identified variables that influenced the level of dissatisfaction with RDP houses. The variables are gender (female), age, race (Black), household size,

education, income, house type, duration and ownership. The gender-female variable has a statistically marginal impact on public transport, indicating a markedly detrimental effect. Women occupied a greater percentage of households than by men, symbolising their dissatisfaction with the amount of time they spent travelling by public transport to and from their RDP houses. However, a positive statistically significant marginal effect of age under the variable doors and windows indicated dissatisfaction with doors and windows as the age of occupants increased. However, a negative effect on sanitation conditions meant that as the occupants aged, their dissatisfaction also escalated. Similarly, as the occupants' age increased, their dissatisfaction with maintenance costs, the importance of being closer to amenities, and their dissatisfaction with public transport's proximity to the RDP houses also increased.

A positive statistically significant margin for the variable race, specifically Black, suggested that Black families were dissatisfied with the available space and the ventilation system in the RDP houses. A negative statistical effect reflected the occupants' dissatisfaction with the house's maintenance costs. Additionally, the household size variable revealed that occupants, particularly those with larger families, are unhappy with the size of the house, due to insufficient space. This variable also highlighted a positive correlation with dissatisfaction regarding the condition of the walls as well as the inadequate ventilation, there was no acceptable ventilation. On the contrary, a negative marginal effect associated with the variable education indicates that educated owners were dissatisfied with the sanitation condition of the house. The income variable signified a positive correlation between the owner’s dissatisfaction with the proximity of public transport and important amenities to their homes. Furthermore, the household type variable, specifically the stand-alone RDP houses, showed a higher level of dissatisfaction with the wall condition compared to those with double-storey RDP houses. Additionally, a negative effect of roof leaks was expressed, indicating that occupants in stand-alone RDP houses were unhappy with the roof leaks.

Moreover, the variable duration indicated that the occupants were dissatisfied with the space for the period they had lived in the RDP houses. Similarly, the duration variable revealed a positive statistically significant marginal effect of wall condition, implying that occupants were dissatisfied with the condition of the wall. Additionally, occupants

expressed dissatisfaction with the doors and windows, as well as with the sanitation condition throughout the duration they had lived in the RDP house. Occupants further expressed dissatisfaction with maintenance costs for the RDP houses. Finally, a negative marginal effect of the variable ownership indicates that owners of RDP houses were unhappy about the space in the house and the possibility of extending the RDP houses in the future.

5.3 Recommendations and policy implications

To enhance overall household satisfaction, occupants have expressed the need for the government to construct larger RDP houses. They believe that the houses should be more spacious, regardless of household size, as the current lack of space restricts movement within them. Many occupants expressed a desire for the government to construct larger homes to accommodate families with more members. Some families find themselves building additional dwellings (shacks) on the same property to accommodate family members who cannot fit into the government-provided houses. To prevent this, residents are hoping for the government to address this issue by constructing larger houses with more living space, which will also enable them to extend it in the future. The occupants are also eager to have RDP houses with suitable ventilation systems, as currently there are no ventilators. Occupants wish for the government to construct RDP houses that require less maintenance and have secure doors and windows.

The government should also focus on optimising the placement of RDP houses. Dissatisfaction among occupants is largely attributed to the desire for these houses to be constructed near public transportation and employment opportunities. Many occupants expressed dissatisfaction over their RDP houses' distance from public transportation and their location on the outskirts of the city, which made it difficult for them to commute to work. Addressing this issue could help prevent people from selling or renting out their RDP houses due to dissatisfaction with the location, which often leads them to return to living in shacks they built themselves closer to their workplaces and job opportunities.

Additionally, the government should enhance essential services like sewage disposal. Some families are worried because their houses were built without proper sewage systems, forcing them to purchase their own pipes and connect to their neighbours' systems. Additionally, there is a need to improve waste disposal by ensuring timely collection to prevent infections caused by uncollected refuse. It is essential for everyone to have access to basic services like electricity and water as a human right. Legal connections for electricity and water are necessary for all residents to prevent them from resorting to illegal connections to their RDP houses, as some reported they were handed houses without electricity and water. It is recommended to test soil moisture to determine if the acquired land is suitable for building structures to prevent the cracking of the walls. Water stains on the walls can result from a leaking roof, so it is important to use high-quality materials for the roof construction. Occupants also prefer high-quality paint because it has been observed that in many houses, the paint on the walls is fading and peeling, likely due to the application of only a single coat during painting.

Furthermore, with regard to the condition of the walls, especially damp walls, the occupants want all houses to be plastered, as some RDP houses are currently not plastered on the inside. They believe that water entering through the walls, causing dampness, is due to insufficient cement used and hope there will be enough cement to plaster the walls. The occupants also stated the need for better quality and quantity of cement for wall plastering. Currently, only a single layer of low-quality cement is visible, leading the occupants to suspect that contractors are doing this to save money for themselves instead of using enough high-quality cement.

5.4 Study limitations and areas of future research

One of the major weaknesses of the study is that it focused only on households and did not include the perspectives of key stakeholders such as municipal officials, urban planners, or housing experts. Perspectives from these stakeholders could have provided additional insights into policy-level challenges and opportunities within the RDP housing programme. For the purposes of this study, sample data could not be collected from stakeholders other than households primarily due to time and resource

constraints. Therefore, the study provides only the experiences and perspectives of households occupying government-provided low-cost houses. As a result, we recommend future studies to build on this initiative and expand knowledge provided in this study by eliciting the perspectives of key practitioners and stakeholders involved in the provision of low-cost houses built by the government. Thus, future studies can also collect data from government officials, building contractors, urban planners, housing experts, and others. Such studies would then increase the stock of knowledge generated in this study. This will enable policymakers to develop and implement programs and policies aimed at enhancing household satisfaction with government-provided houses and advancing the goals of government programmes.

5.5 Delimitations of the study

The study was limited to specific regions within eThekwini Municipality where RDP housing developments feature prominently. Thus, the findings may not fully represent the situation in other municipalities or regions with different service delivery dynamics or levels. Since many RDP house occupants lacked access to technology such as computers or smartphones, data was collected solely through hard-copy questionnaires. This limitation was imposed to ensure broader participation, but it restricted the study's ability to use modern, time-efficient digital survey methods like online questionnaires or emails. The reliability and respondents' honesty could be a barrier because anyone living in an RDP house who is not the owner or a beneficiary was welcome to participate in the research. This was the result of first-time RDP house owners renting out or selling their RDP houses because they were unhappy with them.

The researcher discovered dishonesty in this way because a few tenants mentioned that the house was lacking a door or a tap when they moved in. Perhaps correct information from those who moved into the house as soon as the government gave it to them would have been obtained if the research had been conducted only among the owners. Some who are owners stated the government had given them RDP houses with damaged windows, which they had discovered when they moved into their new homes. This study exclusively employed a quantitative research approach, using questionnaires to gather data from RDP house occupants. While this approach

provides statistical insights, a mixed-method approach incorporating qualitative methods, such as interviews or focus groups, could have enriched the data. Engaging representatives from the eThekwini Municipality or relevant stakeholders might have yielded additional perspectives on the causes of occupant dissatisfaction and potential solutions to improving household satisfaction.

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Appendices

Appendix 1: Proof of ethics approval (DUT-IREC)

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate 1, Steve Biko Campus
Durban University of Technology

P O Box 1334, Durban, South Africa, 4001

Tel: 031 373 2375
Email: lavishad@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

4 December 2023

Ms R N Ndlovu
P O Box 3623
Mandini
4490

Dear Ms Ndlovu

Improving household satisfaction with government-provided houses in the city of Durban
Ethics Clearance Number: IREC 219/23

The DUT-Institutional Research Ethics Committee acknowledges receipt of your notification regarding the piloting of your data collection tool.
Kindly ensure that participants used for the pilot study are not part of the main study.
In addition, the DUT-IREC acknowledges receipt of your gatekeeper permission letter.
Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.
Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the DUT-IREC according to the DUT-IREC SOP's.

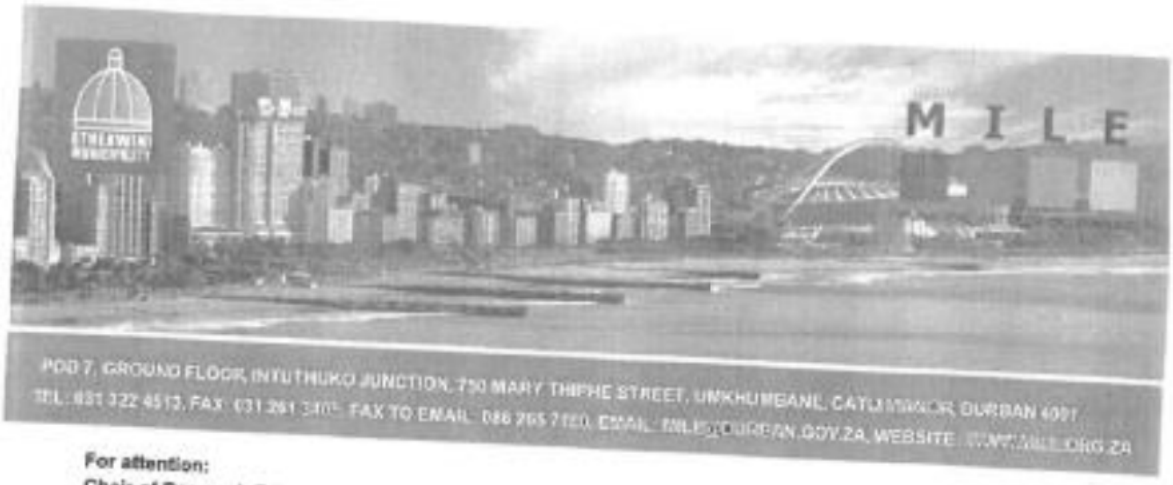
Please note that any deviations from the approved proposal require the approval of the DUT-IREC as outlined in the DUT-IREC SOP's.

It is compulsory for a student or researcher to apply for recertification on an annual basis. The failure to do so will result in withdrawal of ethics clearance. It is the responsibility of the researcher and the supervisor to apply for recertification.
Please note that you are required to submit a Notification of Completion of Study form together with an abstract to the DUT-IREC office on completion of your study.

Yours Sincerely

Prof J K Adam
Chairperson: DUT-IREC

Appendix 2: Gatekeeper's permission



POD 7, GROUND FLOOR, INYUTHUKO JUNCTION, 750 MARY THIPHE STREET, UMKHUMBANE, CATO MANOR, DURBAN 4001
TEL: 031 322 4512, FAX: 031 261 3[illegible] FAX TO EMAIL: 086 765 7160, EMAIL: MILE@DURBAN.GOV.ZA, WEBSITE: WWW.MILE.ORG.ZA

For attention:
Chair of Research Ethics Committee
Faculty of Management Science
Durban University of Technology
Durban
4001
21 November 2023

RE: LETTER OF SUPPORT TO R.N NDLOVU STUDENT NO: 21102798- GRANTING PERMISSION TO USE ETHEKWINI MUNICIPALITY AS A STUDY SITE

The eThekwini Human Settlement Department and Municipal Institute of Learning (MILE) in eThekwini Municipality, have considered a request from **Rachel Nokuphila Ndlovu** (Ms) to use eThekwini Municipality as a research study site leading to the awarding of a **Master of Management Science in Public Administration** and for the purposes of undertaking a research study entitled: **Improving household satisfaction with Government-provided houses in the city of Durban.**

We wish to inform you of the acceptance of her request and hereby assure her of our utmost cooperation towards achieving her academic goals: the outcome which we believe may help this municipality. The student is reminded of the ethical consideration regulations when conducting this research. The student must take all necessary measures to ensure her personal safety during the research period as eThekwini Municipality indemnifies itself from any incidental claims that may arise. **In return, we stipulate as mandatory that the student contacts Buyisiwe.ngubane@durban.gov.za to present the preliminary results and recommendations of this study to the related unit/s.**

Wishing the student all the best in her studies.

Ms. Bulelwa Magudu
PP Head Human Settlement Department
eThekwini Municipality

Dr. Colin Pillay
Program Manager: MILE
eThekwini Municipality

I Rachel Nokuphila Ndlovu hereby accept as mandatory that I will comply fully as per the conditions stipulated above.

Signed: ..... Date: 21/11/2023

Appendix 3a: Letter of information (English version)

LETTER OF INFORMATION

Title of the Research Study: Improving household satisfaction with government-provided houses in the city of Durban.

Principal Investigator: Rachel Ndlovu, BTech in Management

Supervisor: Dr Genius Murwirapachena, PhD in Economics

Brief Introduction and Purpose of the Study:

Greetings, thank you for showing interest in this study. I am a student registered for the Master of Management Sciences in Public Administration at the Durban University of Technology. I would like to invite you to participate in this study. The aim of this study is to establish ways through which household satisfaction with low-cost houses provided by the government can be improved. This is important given existing evidence on the challenges commonly reported by occupants of these houses across the country. Therefore, I would like to invite you to participate in the study by responding to the questionnaire attached.

Your participation in the study is voluntary and under no circumstances should you feel uncomfortable. I would like to emphasize that you can withdraw from the study at any time should you feel uncomfortable to continue participating. As part of the procedure, I will give you a questionnaire that you would go through and complete as honestly and freely as possible. If you need us to go through the questions together, I will gladly go through the questions with you.

Participating in this study should not result in you experiencing any discomfort or significant risk. I will not perform any painful procedure on you or on anyone from your household. Therefore, there will be no discomfort or risk to you as a participant. Furthermore, there will

be no negative consequences if you choose not to participate or withdraw participation in the survey. There will also be no expected injuries from participating in this study.

As mentioned earlier, you can choose to withdraw or stop participating in the study at any time without having to provide reason. There will be no negative consequence if you decide to withdraw your participation. Kindly also note that we will withdraw you from the study if you do not follow the instructions given or decided not to honour your commitment.

Kindly also note that you will not be compensated for your participation in the survey. Your participation is voluntary and will inform policy making and the academic literature. Further, it is important to also indicate that you will not incur any expenses by participating in this study.

The information collected in this study will be managed and stored in a manner that ensures that your confidentiality and anonymity is always maintained. Kindly avoid recording your personal and any other identifying information.

The results of this study will be published after the data has been thoroughly analysed. If any findings emerge during the research, we will make all respondents aware of such.

Please note that the data collected in this study will be stored in a manner that ensures that your confidentiality and anonymity is maintained. All completed questionnaires will be stored in my supervisor's office in a locked cupboard for a period of up to 5 years. Only myself and my supervisor will have access to the completed questionnaires.

Persons to contact in the Event of Any Problems or Queries:

In the event of any problem or query, please contact me on 073 130 0149 or rachelnokuphila10@gmail.com. You can also contact my supervisor Dr Genius Murwirapachena on 031 373 5193 or geniusm@dut.ac.za. Alternatively, you can call the DUT-Institutional Research Ethics Administrator on 031 373 2375 or report complaints to the Acting Director: Research and Postgraduate Support on researchdirector@dut.ac.za

Appendix 3b: Letter of information (IsiZulu version)

LETTER OF INFORMATION

Title of the Research Study: Ukuthuthukiswa ukweneliseka kwasekhaya ngezindlu zikaHulumeni eDolobheni eThekwini

Principal Investigator: Rachel Ndlovu, oneziqu zeBTech in Management

Supervisor: Dr Genius Murwirapachena, oneziqu zePhD in Economics

Brief Introduction and Purpose of the Study:

Ngokuzithoba, ngiyabingelela, ngiyabonga ukukhombisa uthando lokufisa ukuba yingxenye yalolucwaningo. NginguMfundi ofundela iziqu eziphezulu zePublic Administration eNyuvesi yaseThekwini yezobucwepheshe (Durban University of Technology). Ngingathanda ukunimema ukuba nihlanganyele ecwaningeni engikwenzayo ezindaweni zase Thekwini. Injongo yalolucwaningo ukuthola izindlela zokwaneliseka ngezindlu zenani eliphansi imixhaso kaHulumeni. Lokhu kubalulekile ngenxa yobufakazi bezinkinga ngalezindlu ekunezikhalazo ezibikiweyo izwe lonke. Ngakho ke, ngicela ukukumema ukuth ubambe iqhaza kulolucwaningo ngokuth uphendule imibuzo kuhlu lwemibuzo ebekiwe lana

Ukuba yingxenye yalolucwaningo kuya ngokuzithandela kwakho, awuphoqiwe futhi akukho ndawo lana ekumele uzizwe ungakhululekile. Ngithanda ukugcizelela ukuth ungahoxisa ukuba yingxenye yalolucwaningo noma inini uma uzizwa ungakhululekile ukuth uqhubeke ube yingxenye. Njengohlelo, ngizokunika uhlu lwemibuzo ozoyifunda bese uyayiphendula ngokweqiniso. Uma udinga ukucaciseleka ngemibuzo, ngikhona ukukusiza ukuth ucaciseleke siyifunde imibuzo ndawonye.

Ukubamba iqhaza nokubayingxenye yalolucwaningo akumele kukwenze uzizwe ungakhululekile noma impilo yakho ibesencupheni. Ayikho inqubo engizoyenza kuwe

nomndeni wakho ezonizwisa ubuhlungu. Ngakho ke, akukho ubungozi kuwe oyingxenye yalolucwaningo. Ngaphezu kwalokho, akukho okuwumthelela omubi uma ukhetha ukungabi yingxenye yalolucwaningo. Futhi akukho ukulimala okulindelekile uma uyingxenye yalolucwaningo.

Njengoba besengishilo ngaphambilini, uvumelekile ukuhoxa kulolucwaningo noma inini ngaphandle kokusho isizathu. Akukho okuwumthelela omubi uma ukhetha ukuhoxa kulolucwaningo. Ngokuzithoba, yazi ukuth uzohoxiswa kulolucwaningo uma ungayilandeli imiyalelo noma uma ungasifezi isthembiso sokuzinikela kulolucwaningo.

Ngicela wazi ukuth bonke abanengxenye angeke bathole noma yiziphi izinzuzo zemali ngokuhlanganyela kulolucwaningo. Ukuba yingxenye yalolucwaningo kungokuzikhethela wena futhi kuzosiza abaphezulu ngenqubomgomo noma ngezinqumo kanye nangokwe mfundo. Ngaphezu kwalokho, kubalulekile ukucacisa ukuth angeke kubekhona izindleko zakho ngokuba yingxenye yalolucwaningo.

Imininingwane ezotholwa ngalolucwaningo izogcinwa iyimfihlo nokuqikelela ingaziwa. Uyacelwa ungadaluli ulwazi lomuntu siqu.

Imiphumela yalolucwaningo iyokhishwa mhla sekuqediwe ukuhlahlela ngokwanela. Uma kukhona imiphumela ekhishwa phakath nocwaningo, bayokwaziswa bonke abayingxenye.

Sicela wazi ukuth imininingwane ezotholwa kulolucwaningo izogcinwa iyimfihlo futhi ingaziwa. Yonke inqubomibuzo ephenduliwe izogcinwa iphephile nguMeluleki wam eHhovisi ekhabetheni lakhe elikhiywayo iminyaka emihlanu. Yimi naye kuphela esizokwazi ukufinyelela kwinqubomibuzo egcwaliswe ngokuphelele.

Abantu ongaxhumana nabo esimeni sanoma iziphi izinkinga noma imibuzo :

Kunoma iziphi izinkinga noma imibuzo, ngicela uthinte mina ku 073 130 0149 noma rachelnokuphila10@gmail.com. Ungamuthinta nomeluleki wami uDr Genius Murwirapachena ku 031 373 5193 noma geniusm@dut.ac.za. Okanye, ungafonela eDUT-Institutional Research Ethics Administrator ku 031 373 2375 noma ubike izikhalazo ku Acting Director: Research and Postgraduate Support kuresearchdirector@dut.ac.za

Appendix 4a: Consent letter (English version)

Consent

Full Title of the Study: Improving household satisfaction with government-provided houses in the city of Durban

Names of Researcher/s: Rachel Ndlovu

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Rachel Ndlovu , about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: 219/23,

- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.

- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.

- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.

- I may, at any stage, without prejudice, withdraw my consent and participation in the study.

- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant	**Date**	**Time**	**Signature / Right Thumbprint**

I, Rachel Ndlovu here with confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Appendix 4b: Consent letter (IsiZulu version)

VUMELA

Isihloko esiphelele socwaningo: Ukuthuthukiswa ukwaneliseka kwasekhaya ngezindlu zikaHulumeni eDolobheni eThekwini.

Ama/i/gama lomcwaningi noma abacwaningi: Rachel Ndlovu

Isitatimende sesivumelwano sokubamba iqhaza ocwaningweni:

- Ngiyaqinisekisa ukuthi ngazisiwe ngumcwaningi, _____Rachel___ Ndlovu____ , mayelana nesimo, ukuziphatha, izinzuzo kanye nobungozi balolu cwaningo – Inombolo yemigomo elawula ukwenziwa kocwaningo engu: _____219/23_____,
- Ngiphinde ngathola incwadi, ngayifunda futhi ngayiqondisisa yonke imininingwane ebhaliwe (Incwadi yalabo ababambe iqhaza) mayelana nocwaningo.
- Ngiyazi futhi ukuthi imiphumela yocwaningo ebandakanya imininingwane yami yobulili, iminyaka, usuku lokuzalwa, izinhlamvu zokuqala zamagama ami kanye nesifo esingiphethe kuzoba yimfihlo emiphumeleni yocwaningo.
- Ngokwezidingo zocwaningo, ngiyavuma ukuthi imininingwane eqoqiwe kulolucwaningo ingasetshenziswa ngokusebenzisa ubuchwepheshe bekhumpuyutha.
- Ngingahoxa noma inini ngaphandle kokuphoqwa ekubambeni iqhaza.
- Ngibe nethuba elanele lokubuza (ngokuthanda kwami) ngaze ngazizwa ukuthi sengikulungele ukubamba iqhaza ocwaningweni.
- Ngiyaqonda ukuthi okusha okuzotholakala kulolucwaningo okungahlobana nokubamba iqhaza kwami kuzokwenziwa ukuthi nami ngikuthole.

_____ _____ _____ _____

Amagama aphelele alowo ubambe iqhaza **UsukuIsikhathi** **Sayina**

Mina, Rachel Ndlovu ngiyaqinisekisa ukuthi umhlanganyeli ongenhla wazisiwe ngokugcwele mayelana nesimo, ukuziphatha kanye nobungozi bocwaningo olungenhla.

Appendix 5a: Questionnaire (English version)

Improving household satisfaction with government-provided houses in the city of Durban

My name is Rachel Nokuphila Ndlovu, a Master's student in the Department of Public Management and Economics at the Durban University of Technology. I am conducting research on household satisfaction with government-provided houses in the city of Durban. This survey collects data that will inform public policy on the planning and construction of low-cost houses. The survey is divided into two sections. Section A collects biographical information of the respondents, while section B contains general questions on household satisfaction with government-provided houses. Kindly note that all information collected will be used for academic purposes only and all personal information will be treated confidentially. Please take some time to answer the following questions as truthful as possible.

Date: ____/_____/2023 Place: _____

SECTION A: PERSONAL INFORMATION

1. Gender

Male	
Female	
Other	

2. What is your year of birth? (*Optional*)

3. Which population group do you belong to? (*Optional*)

African	
White	
Indian/ Asian	
Coloured	

4. How many people live in your household?

5. What is your highest level of education?

Never attended school	
Primary school	
High school	
Diploma	
Degree	
Postgraduate	

6. What is your household's average monthly income?

7. Which best describes your current house?

RDP standalone house	
RDP double storey	

8. How long has your household lived in this house? (*State the period in years*).

9. Are you the owner or tenant in this house?

Owner	
Tenant	

SECTION B: GENERAL QUESTIONS

10. The following questions relate to your satisfaction with the RDP house that you live in. (*Please choose the most appropriate response to each question*)

		Strongly agree	Agree	Disagree	Strongly Disagree
1	The house has enough space for my household.				
2	The walls of the house are in good condition.				
3	The roof does not leak when it rains.				
4	The condition of the doors and windows is good.				
5	There is acceptable ventilation in the house.				
6	Sanitation for the house is in good condition.				
7	The yard allows for future extension.				
8	It is not expensive to maintain the house.				
9	The house is closer to public transport.				
10	The house is closer to important amenities.				

11. The following questions relate to the challenges experienced by occupants of RDP houses. (*Please choose the most appropriate response to each question*)

		Yes	No
1	The wall of the house has some cracks.		
2	Paint on the wall is peeling off.		
3	The wall does not have a smooth finish.		
4	There are water damages on the wall.		
5	The floor does not have a smooth finish.		

6	The floor has some cracks.		
7	The roof leaks when it rains.		
8	Sometimes I get worried that the roof will fall.		
9	Doorframes are not installed properly.		
10	Doors are not strong enough for security.		
11	Windows are not securely installed.		
12	The property is usually affected by floods.		
13	The retaining wall on my property collapsed.		
14	The house is far from amenities (e.g., schools, clinics, shops, etc.).		
15	Sewerage disposal is a common problem.		
16	Refuse is not collected regularly in my area.		
17	Water supply is a common challenge in my area.		
18	Besides loadshedding, electricity supply is unreliable in my area.		

12. In your own opinion, what should be done improve your satisfaction with the RDP house that you live in. (*Write your response in the box below).*

Thank you for taking your time to participate in this survey.

Appendix 5b: Questionnaire (IsiZulu version)

Ukuthuthukiswa ukwaneliseka kwasekhaya ngezindlu zikaHulumeni eDolobheni eThekwini

Igama lami ngingu Rachel Nokuphila Ndlovu, umfundi wesiqu esiphezulu kwaDepartment of Public Management and Economics enyuvesi yase Thekwini yezobuchwepheshe. Ngenza ucwaningo ngokuthuthukiswa kwaneliseka kwasekhaya ngezindlu zikaHulumeni edolobheni eThekwini. Inhlolovo iqoqa ulwazi oluzokwazisa inqubomgomo yomphakathi ngokuhlela nokwakhiwa kwezindlu zenana eliphansi. Lenhlolovo ihlukaniswe Kabili. Ingxenye yokuqala iqoqa imininingwane echaza ngomuntu ophendulayo, kanti ingxenye yesibili inemibuzo ejwayelekile ngokuthuthukiswa ukwaneliseka kwasekhaya ngezindlu zikahulumeni. Ngomusa yazi ukuth lonke ulwazi oluzoqoqwa lungolwazi lwemfundo kuphela, futhi yonke imininingwane yomunt izophathwa ngemfihlo. Ngicela uthathe iskhathi uphendule lemibuzo engezansi ngokweqiniso.

Usuku: ____/_____/2023 Indawo: _____

INGXENYE YOKUQALA: OKOMUNTU SIQU

1. Ubulili

Owesilisa	
Owesifazane	
Okunye	

2. Imuphi unyaka wakho wokuzalwa? (*Ozikhethela*)

3. Ungowaluphi uhlanga? (*ozikhethela*)

Nguni	
Mlungu	
Indiya	
Khalathi	

4. Bangaki abantu abahlala kulelikhaya?

5. Izinga lemfundo yakho?

Awukaze ufunde	
Isikole sebanga eliphansi	
Isikole sebanga eliphezulu	
Idiploma	
Iziqu	
Iziqu zeziqu	

6. Ingakanani imali engenayo nyanga zonke kulelikhaya?

7. Ikuphi okuchaza kahle uhlobo lwalomuzi?

Umxhaso ozimele	
Umxhaso oyisitezi	

8. Senihlale isikhathi esingakanani kulelikhaya? (*Chaza isikhathi ngeminyaka*).

9. Ingabe ungumnikazi walendlu noma uyisiqashi?

Umnikazi	
Isiqashi	

INGXENYE YESIBILI: IMIBUZO EJWAYELEKILE

10. Lemibuzo elandelayo imayelana nokugculiseka ngendlu yoMxhaso ohlala kuyo. (*Ngicele ukhethe okufanelekileyo kumubuzo ngamunye*)

		Ngivuma kakhulu	Ngiyavuma	Angivumi	Angivumi neze
1	Lendlu inesikhala esanele.				
2	Izindonga zalendlu zisesimeni esihle.				
3	Uphahla lwendlu aluconsi uma kunetha.				
4	Izicabha namawindi kusesimeni esihle.				
5	Kunomoya owamkelekileyo kulendlu.				
6	Ukuthuthwa kwendle kusesimweni esihle.				
7	Igceke likhulu ngokwanele ukuth ungayinweba indlu.				
8	Akubizi ukuyigcina noma ukuyinakekela lendlu.				
9	Lendlu yakhiwe eduzane nezithuthi zomphakathi.				
10	Lendlu yakhiwe eduzane nezinsiza ezibalulekile.				

11. Lemibuzo elandelayo imayelana nenzinkinga abahlali bakulezizindlu abahlangabezana nazo. (*Ngicele ukhethe okufanelekileyo kumubuzo ngamunye*)

		Yebo	Chabo
1	Izindonga zalendlu zineminkenke.		
2	Upende odongweni uyaxebuka.		
3	Izindonga azisheleli.		
4	Kunomonakalo wamanzi ezindongweni.		
5	Phansi akusheleli.		
6	Phansi kuneminkenke.		
7	Uphahla luyaconsa uma kunetha.		
8	Kwesinye isikhathi ngiyakhathazeka ukuthi uphahla lungawela kuthina.		
9	Iminyango ifakiwe ngokufanele.		
10	Iminyango iqinile ngokwanele ukuze kuphephe.		
11	Amawindi afakiwe ngendlela efanelekile.		
12	Impahla,ikhaya lijwayele ukugcwala amanzi.		
13	Udonga lokubamba inhlabathi lake labhidlika.		

14	Lendlu iseduze nezinsiza ezibalulekile (Izikole, umtholampilo, izitolo).		
15	Ukuthuthwa kwendle kuyinkinga ejwayelekile.		
16	Ukuthuthwa kokwadoti kwenziwa ngokufanelekile kulendawo.		
17	Ukubonelelo lwamanzi luyinkinga ejwayelekile kulendawo.		
18	Ngaphandle kokunqanyulwa kukagesi, ukulethwa kukagesi kuyinkinga.		

12. Ngokubona kwakho, yikuphi okumele kwenziwe ukuthuthukisa ukwaneliseka kwakho ngendlu yoMxhaso ohlala kuyo. (Bhala impendulo yakho ngezansi*).*

Ngiyabonga

Appendix 6: Proof of language editing

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The pen is mightier than the sword

To whom it may concern

I edited the Master's thesis titled: **Improving Household Satisfaction with Government-Provided Houses in the City Of Durban** submitted in fulfilment of the requirements of the degree of Master of Management Sciences specialising in Public Administration in the Faculty of Management Sciences at the Durban University of Technology by **RACHEL NOKUPHILA NDLOVU**, student number: 21102798

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