REPORT

MUNICIPAL LEVEL EVALUATION IMPACT ON HOUSING

human settlements
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

FINAL REPORT

MUNICIPAL LEVEL EVALUATION IMPACT ON HOUSING

Prepared by BKZ 37 Consulting

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Executive Summary

There is a big gap between theory and application of the concept of sustainability to solving practical problems in the production and consumption of housing in developing countries such as South Africa. This report is therefore a very timely contribution and important to the understanding of the concept. The aim of the report is to support the efforts of the Department of Human Settlements in the province of Mpumalanga in terms of generating empirical evidence that makes it possible to make evidence-based policymaking on sustainable development and housing. Monitoring and evaluation of housing programmes is vital to assess whether they work, to help refine programme delivery, and to provide evidence for continuing support of the programme. Evaluation does not only provide feedback on the effectiveness of a programme but also helps to establish whether the programme is appropriate for the target population, to identify any problems with its implementation and support, as well as identification of any ongoing concerns that need to be resolved as the programme is implemented.

Social housing in South Africa is provided through the public and private sectors. In recent years, South African policymakers have given increasing emphasis to creating sustainable human settlements rather than focusing merely on delivering housing, hence changing of the name of the department from "*Department of Housing*" to the "*Department of Human Settlements*". By so doing, the focus shifted from "housing being just a roof over people's heads, to providing sustainable and integrated human settlements where people can work, pray, play and have access to amenities required for their day-to-day living." Provision of housing by the state is part of its comprehensive anti-poverty strategy.

The Department of Human Settlements is tasked with this responsibility at a national level. Considering the three spheres of government, this task is assigned to provincial Departments of Human Settlements, and to municipalities at local government level. The Mpumalanga Department of Human Settlement, hereafter referred to as the department is the focus of this study. Between 2015 – 2019, the department delivered 39 391 Individual Houses (i.e., UISP, IRDP, EPHP & Rural Housing), 224 Social Housing Units, 321 Community Residential Units and 102 Financed Linked Individual Subsidy Programme Units. Our focus is on the four programs that were identified by the department for evaluation, namely the Upgrading Informal Settlements Program

(UISP), Integrated Residential Development Program (IRDP), People's Housing Process (EPHP), and the Rural Housing programme.

This report evaluates these four programmes by adopting an approach which is two-fold. Firstly, we undertake a comprehensive descriptive analysis of beneficiary's satisfaction with housing received from the four programmes between 2015 and 2019. Secondly, we apply a housing satisfaction model to examine beneficiaries 'housing satisfaction in each programme on a comparative plane.

Mpumalanga province consists of seventeen local municipalities and three district municipalities. Seventeen were chosen to be part of the study, however research could not be undertaken at Bushbuckridge Local Municipality. It should be noted that both the department and BKZ 37 Consulting did contact the municipal official/s from Bushbuckridge Local Municipality, however they could not facilitate for work to be carried out. The reasons for their failure to facilitate for research to be undertaken in their municipality remains unclear and we urge the department to take this issue further with the relevant municipal authorities. Surveys were successfully undertaken at the remaining sixteen municipalities:

Ehlanzeni District Municipality.

- City of Mbombela Local Municipality
- Nkomazi Local Municipality
- Thaba Chweu Local Municipality

Gert Sibande District Municipality

- Chief Albert Luthuli Local Municipality
- Dipaleseng Local Municipality
- Dr Pixley Ka Isaka Seme Local Municipality
- Govan Mbeki Local Municipality
- Lekwa Local Municipality
- Mkhondo Local Municipality
- Msukaligwa Local Municipality

Nkangala District

- Dr JS Moroka Local Municipality
- Emakhazeni Local Municipality
- Emalahleni Local Municipality
- Steve Tshwete Local Municipality
- Thembisile Hani Local Municipality

- Victor Khanye Local Municipality

A total of 4 171 households were surveyed in the 16 municipalities that participated in this study. This exceeds our 10% target sample of 3 939 households, despite doing one-less municipality than was intended. To examine housing satisfaction, five objective components of satisfaction—quality of the dwelling, neighbourhood, living conditions, experience in receiving the title deed / permission to occupy (PTO), implementation of the housing scheme/s, and training from the department prior to moving into the housing units—were analysed through beneficiaries 'levels of satisfaction which were measured by mostly applying a Likert scale. In addition to that, we also obtained from respondents their views regarding housing unit support services, the social environment, and public facilities.

The findings of the report indicate that the Department's endeavour to provide housing to the poor has been successful in providing a moderate level of satisfaction with the housing units. This conclusion is reached because most of the respondents in the four programmes (UISP = 52%, IRDP = 51%, and EPHP = 81%) with exception of Rural Housing (i.e., which had 26%) rated the overall quality of their dwelling as good. Although Rural Housing had smallest share of those who indicated that their houses were good, none viewed them as poor either, meaning remaining 74% rated them as average. The indication of the poor status of the houses was signalled in the other three housing schemes, with 10% of UISP, 7% of IRDP and 2% of EPHP respondents. The difference in these other three programmes obviously gave a rating of average.

Although an overwhelming number of beneficiaries stayed in the main houses provided through the four housing schemes, a significant proportion constructed some structures at the back and opted to stay there instead. The nature of the additional structure varied from normal brick structures (i.e., rooms), to informal dwelling (i.e., shacks). Approximately 17% UISP beneficiaries sampled stayed at the backyard structure instead of main dwelling provided by the department. This number stood at 12% and 11% for the IRDP, and Rural Housing respectively. Only 2% of EPHP beneficiaries did not stay in their main dwelling. These numbers represent 94% of our total sample, those who stayed in the homes they obtained from the department. The remaining 6% of respondents we interviewed were not original beneficiaries of the homes provided by the department. When asked how they got to occupy those homes, 2% indicated that they were renting.

A significant proportion (*11% on average of those staying in the backyard, plus 2% renting and 3% who did not disclose nature of their tenure = 16% of total sample*) even though they are in the minority, are renting out their main dwelling to generate some income. This is plausible considering income levels are very low, with average income of R7 169.67 per annum. Approximately 40% of respondents earned between R3 000 – R5 000 per year, and thus rely heavily on government grants. This suggests that the housing programmes are targeting the right target group, the poor. The number of respondents in this category could be higher had we not encountered a situation where a significant number of respondents (around 24%) not disclosing their income. The second plausible reason is that the housing unit's size is inadequate, hence construction of backyard structure is a proxy for a need for bigger sized units, considering that the average household size stood at 5 family members and these houses were mainly 2-bedroom houses.

The fact that many recipients do not have title deeds is worrying. The worst affected programmes seem to be the UISP and IRDP housing schemes where approximately 62% and 58% of respondents did not have title deeds. The situation is much better with the other two housing schemes with 86% and 85% of EPHP and Rural Housing having title deeds / PTO. The reasons for this disparity or most importantly for under-performance when it comes to title deeds is unclear especially for EPHP. For Rural Housing it understandable as issuing of PTO is a much quicker process that issuing a title deed. Nonetheless, this issue regarding title deed warrants urgent government intervention.

Overall, the existence of variable levels of satisfaction with other components implies that there is scope to enhance beneficiary's satisfaction with those components. Our assessment reveals that the housing schemes had positive effects on basic services (access to water, sewerage, and electricity). The respondents were asked to identify areas where the department could improve housing delivery to bridge gap between what they were receiving and their expectations. The UISP respondents identified the following five areas for improvement, cleaner environment (30%), better comfort relative to previous living (28%), better quality finishes (24%), bigger housing units (21%) and better sanitary systems. IRDP respondents identify the same areas for improvement, differences been the ordering of those factors, with improved sanitation a number one priority for them with 46%, followed by improved environment at 42%, improved comfort at 35% and 32% each for both increased housing unit and quality

finishes. EPHP beneficiaries sampled would like to see larger housing units (77%), cleaner environment (59%), better sanitation (50%), more comfort (47%) and quality finishes (44%). Rural Housing respondents on the hand ranked areas for improvement as follows, better finishes (61%), improved comfort (58%), cleaner environment (55%), improved sanitation (47%) and need for more consultation (47%). Although wanting bigger housing unit did not make their top 5 areas for improvement, it was their seventh at 37%. This shows systematic differences between the rural housing programme and other housing units which are predominantly in urban areas, and thus conclude these are driven amongst other factors by the location.

Our modelling analysis reveals that the results for size of unit is a determinant of overall satisfaction rating in all the four programmes apart from the EPHP programme. There is a positive and statistically significant relationship between size of housing unit and satisfaction rating. The condition of house - wall, roof and floor also matters to varying degrees. These matters for both UISP and IRDP programmes except condition of floor at the latter programme. We observe a positive and significant relationship between these factors and satisfaction rating at the two programmes. The condition of the wall only mattered for both the EPHP and the Rural Housing programme. We observe even in this instance a positive relationship between satisfaction and those housing feature components. Socio-demographic factors influenced the satisfaction level to varying degrees in the four programmes.

Our predictive models also revealed that the housing residents' overall housing satisfaction can be enhanced by improving satisfaction with indoor temperature and addressing sound problems inside the house. It seems that the houses are generally hotter inside and too noisy. The department will have to relook at both design and build quality, so there is less need for cooling of the space to reduce the indoor temperatures. Similarly, there is a need to better soundproof the housing units from outside noises.

The above analysis leads to some policy implications for the Mpumalanga Department of Human Settlement in its provision of social housing for the poor:

1. A significant percentage of the units in each housing scheme should be built for large (5) families,

2. Optimizing of the building envelope design to manage noise pollution and create healthy indoor environment,

3. The department should improve its 'bundle approach' to provide housing along with other facilities especially in Rural areas,

4. The department should select the location for housing units based on where non-sheltered facilities exist.

Whereas the first three policies have financial implications; the fourth policy would require the department to select locations of housing in areas where proper public and other facilities are available. Some techniques to assess suitability pertaining to the location of housing units can be used to identify areas of high potential from the perspective of the availability of public, neighbourhood and social facilities. Although first three have financial implications, a good starting point would be to undertake some "*efficiency analysis*". It is not clear whether the department is getting value for money in terms of design and build quality. Has the department ever done an investigation of whether they are maximizing in terms of total output given the current budget allocation? Is it possible for example to build more housing units of the same quality with same budget? Is it possible to build better housing units with the same budget? Is it possible to build more housing units of better quality with same budget?

The solution does not always have to be more funding. A more robust first step often ignored because it is easy to just say you do not have enough resources, is an assessment of whether the department is maximizing from its current budget allocation. This step is central to private developer's operational model. It does not have to work only in a profit driven environment, but very much applicable in public goods/services provision but often ignored. Considering scarcity of resources, especially considering the outlook of the global economy keeps going from bad to worse. Failure to adopt this way of thinking and operating means government can never disincentive wasteful expenditure or at best sub-optimal expenditure, which always results in under delivery. The questions posed in this report do not only apply to the Mpumalanga Department of Human Settlement but to all other departments not only in Mpumalanga but across the country, in the public sector (i.e., *central government – for example government departments, local government, provincial government, and public enterprises or corporations*).

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1. Introduction

Although housing is an integral part of human settlement that fulfils basic needs and has a profound impact on the quality of life, health and welfare, a significant portion of people in developing countries do not have access to decent affordable housing. Wachter, Hoek-Smit and Kim (2018) state that according to the United Nations (UN), approximately over 1 billion people live in inadequate housing, in places which lack access to basic infrastructure (transportation, electricity, water, sanitation), urban services (education, health) and public space (space for parks and community facilities such as schools, health care centres) with negative with negative consequences for human development.

In South Africa, social housing is usually provided through the public and private sectors. Public-sector provisions are mostly concentrated in large urban areas such as Mbombela and Emalahleni, but also in the rural areas, while the private sector operates mainly in urban and suburban areas. According to the World Bank (2021), approximately 67% of South African's live in urban areas, so it is not surprising that most housing projects are concentrated there. Low-cost housing provision has thus been a major focus of South African government post-apartheid era, as the government attempts to address historical race-based inequalities. The country's return to democracy in 1994 brought with it a policy concern that there was a large housing shortage. It was also thought that the existing housing market excluded the poor given their stringent financial requirements of required income thresholds and indebtedness criteria. These specific concerns were within a general concern that this situation would lead to massive land invasions which would compromise property rights and investment. As a result of massive housing backlogs, informal settlements have spiked, and this has given rise to informal peripheral urban growth due to overcrowding as poor households have nowhere to be housed.

According to Jenkins (1999), the White Paper on Housing of 1994, which has undergone some subsequent amendments, prioritized the needs of the poor, has encouraged community participation and the involvement of the private sector, and committed to deliver one (1) million houses in five years (Jenkins 1999). Aigbavboa and Thwala (2013) state that the delivery of the one (1) million houses has since been surpassed. The African National Congress (ANC) Reconstruction and Development

Program Document (RDP) formulated in 1994, and the Constitution (The South Africa Constitution, 1996) also commit to providing housing for the poor. Since 1994, the low-cost housing program has mostly involved building serviced townships on urban peripheries, which presents a myriad of environmental, social, and political concerns. By the end of 2009, government had approved 2.8 million houses, giving shelter to more than 13.5 million people, free-of-charge, according to the Department of Human Settlement.

However, many shortcomings with the process have become evident, as the process has unfolded. These include new houses and infrastructure of poor quality and are rapidly deteriorating; new houses and Human Settlement placement of beneficiaries (poor and low-income) on urban peripheries, far from jobs and services; people dislike the model of housing used, and against their preference for larger houses. The main model was first changed in 1998 when Department of Housing, now the Department of Human Settlement, increased the minimum size of new houses to $30m^2$ and was further increased in 2004, during the launching of the Breaking New Ground Policy to $40m^2$. The preferred model of free-hold tenure inadequately deals with the dynamics of poverty, and several categories of the poor, such as temporary workers and many women, would be better served by rental accommodation, as against giving of houses. Because of these problems, people often sell or rent out their RDP houses bought through the subsidy, and move back to squatter or other informal settlements, closer to their economic activities; and environmental concerns regarding the new developments include increases in vehicular traffic caused by urban sprawl and land use changes (Aigbavboa and Thwala, 2013).

From the above, it is thus evident that there are concerns regarding the quality of houses, adequacy, and sustainability of the South African housing programmes. This Draft Report presents an outline of an evaluation of the Mpumalanga's Department of Human Settlement's housing and settlements (MDHS) programs: Upgrading Informal Settlements Program (UISP), Integrated Residential Development Program (IRDP), Enhanced People's Housing Process (EPHP) and the Rural Housing Program (RP). These programs are an attempt to ameliorate the lack of adequate housing solutions particularly for the poorer households of the population in South Africa.

The provision of social housing by the public and private sectors has not been widely studied in South Africa. So far, there are few studies that evaluate the satisfaction of housing programmes beneficiaries in South Africa. Therefore, this study represents an important contribution to our understanding of how these programmes are perceived by the beneficiaries. Lack of secondary data, and outbreak of COV19 made primary data collection very challenging. This is done by adopting the housing satisfaction model which is currently used as a customer satisfaction tool for public/private housing by many local governments in the United Kingdom (UK) and the United States of America (USA). The rationale is to assess if the houses delivered from the programme meet the beneficiary's satisfaction and sustainability challenges. A literature review of housing programmes targeting the poor reveals that housing satisfaction is a complex construct and that it is influenced by various factors which require careful investigation.

This work investigates those drivers and examine their role in the overall satisfaction, with the following objectives:

1. To examine and compare the levels of housing satisfaction perceived by the beneficiaries in the provided housing programmes,
2. To determine the factors influencing the overall housing satisfaction levels in each housing program,
3. To provide recommendations that helps improve beneficiaries 'levels of housing satisfaction.

Given the objectives of the study, the research project asks the following questions:

1. How do the beneficiary the four housing programmes rate their satisfaction?
2. How do the beneficiaries 'perceived levels of satisfaction differ by the housing programmes?
3. What are the perceptions of municipal and provincial government administrators of the selected housing programmes?
4. What are the predictor variables and factors that can enhance the housing satisfaction levels of the beneficiaries in the four housing programmes?

The report starts with an overview of the literature, and then presents the background to the study, followed by brief overview of the selected housing programmes. Thereafter, we present the methodology, shed light on the survey and provide an analysis of the data. We finally present the preliminary results and findings and make preliminary recommendations at an aggregated level. It is important to also note at this stage that due to Covid 19 regulations there was an agreement between the department and BKZ37 Consulting to replace the focus group discussions that had been proposed in the inception report with electronic survey questionnaires administered on municipal and provincial department officials responsible for the selected housing programs.

2. Impacting of the Department's Housing Programmes on the Countries Housing Backlogs

Housing backlog in South Africa cannot be easily addressed and therefore housing protests will continue. Although there has been a general increase in the budget allocation for the Department of Human Settlements, this growth falls short of meeting the rapidly growing demands for housing. The backlog cannot be cleared by increasing housing outputs. The housing problem is dependent upon other factors such as unemployment, slow economic growth, rural underdevelopment and a lack of quality education for the poor (Msindo, 2016).

According to Obioha (2019), between 1994 – 2019, a total of approximately 4.8 million housing opportunities were delivered , with 3.3 million housing units built and 1.1 million serviced sites completed. The number of houses built under the Enhanced Extended Discount Benefit Scheme (EEDBS) stood at 369 330. On average 45 000 sites were serviced per annum. Overall, an average of 130 533 houses were built per annum, while this number stood at an average of 14 773 EEDBS per annum.

Although South Africa's living conditions have generally improved since 1994 with around 78% living in formal dwellings, 85% having access to electricity, 90% having access to piped water and 66% partially ownership of / dwellings, there is still a significant proportion of the population (approximately 14%) living in informal dwellings – i.e., slums and backyard dwellings (Msindo, 2016). Therefore, addressing the housing backlogs still remains one of the priorities for the government. Rapid

population growth and urbanization are one of the factors making this challenge even harder.

The growth in demand for housing seems to far outstrip growth in number of housing units delivered, hence the question we should be asking is whether it is still rationale to continue with the current housing deliver model such the four housing programmes that are evaluated in this study. In other words, do programmes such as IRDP, UISP, EPHP and Rural Housing make an impact on dealing with the ever increasing demand for housing. Although assessment of impact of these programs falls outside the scope of this research project, the determination of satisfaction of these housing programmes provides useful insight from the beneficiaries point of view. Satisfaction studies such as one undertaken in this study is an opportunity for public participation and inform policy in terms of providing housing in-line with housing demands which can perhaps lead in less protests.

3. Housing Satisfaction Literature Review

There are various ways in which housing satisfaction can be defined. One of the common definitions in the literature is that it is a degree of contentment experienced by an individual or household regarding the current housing situation. Fundamentally, it is a non-economic and normative quality evaluation approach, intended primarily for assessing the quality of housing units and services. The assessment is based on a 'minimum standard or intervention points 'beyond which something needs to be done to avert further deterioration of the housing condition (Ogu, 2002). The idea of housing satisfaction has been used as a guide by many policymakers and housing stakeholders to provide housing to a variety of people (Ukoha and Beamish, 1997). It has been used as (Djebarni and Al-Abed, 2000):

1. A key predictor of an individual's perceptions of general quality of life,
2. An indicator of incipient residential mobility, and has thereby altered housing demands and affected neighbourhood change,
3. An ad hoc evaluative measure for judging the success of developments constructed by private and public sectors; and
4. A tool to assess residents' perceptions of inadequacies in their current housing environment to improve the *status quo.*

Lately, the neighbourhood component of housing satisfaction has been used to evaluate the physical form of two US cities (Yang, 2008). In terms of theory, housing satisfaction perceptive is often considered the difference between households 'actual and their desired/aspired housing and neighbourhood situations (Galster, 1987). Individuals often make judgements about housing conditions considering their needs and aspirations, so any incongruence between the two may lead to dissatisfaction. Rossi (1955) states that housing needs and aspirations change as household's progress through their life cycle, leading to residential dissatisfaction at some stage. They respond to this dissatisfaction by migrating to other areas. Hence, migration is regarded as an adjustment process to enhance residential satisfaction.

Morris and Winter (1975; 1978) introduced the idea of "housing deficit" and conceptualised housing satisfaction as a dynamic process. In their housing adjustment model of residential mobility, they point out that households judge their housing conditions according to two types of norms, personal or cultural, which may not coincide. An incongruity between the actual housing satisfaction and housing norms results in a housing deficit. That, in turn, gives rise to housing dissatisfaction, leading to some form of housing adjustment. It may be in situ, such as revising one's housing needs and aspirations to reconcile the incongruity or improving one's housing conditions through re-modelling. Alternatively, the adjustment may be made by moving away to bring the housing into conformity with one's aspirations or needs.

Housing satisfaction is a complex construct, influenced by a wide variety of environmental and socio-demographic variables (Lu, 1999). Past studies on housing satisfaction have therefore used several variables representing housing and neighbourhood characteristics, individuals 'socio-demographic attributes as well as their perceptions of the housing and neighbourhood conditions that affect housing satisfaction. Jaafar et al. (undated) observed that project type, house price and duration of residency significantly influenced housing satisfaction among the residents of Penang Development Corporation's projects. Ukoha and Beamish (1971) found that while the residents of public housing in Abuja, Nigeria, were satisfied with neighbourhood facilities, they were dissatisfied with structure types, building features, housing conditions and management.

Husna and Nurizan (1987) found that while the residents of public low-cost housing in Kuala Lumpur, Malaysia, were satisfied with the services rendered by the city-hall workers and with the neighbourhood factors, a large proportion of them felt dissatisfied with housing unit features. Nurizan (1993) found that whereas the residents of low-cost housing in Johor Bahru were satisfied with public transport and the distance of housing from the city, they were unsatisfied with the size, rent and crowding in their houses. Djebarni and Al-Abed (2000) reported that the residents of public low-income housing in Sana attach great importance to the level of satisfaction with their neighbourhoods, particularly about privacy, which reflects the cultural background of Yemeni society.

Lane and Kinsey (1980) found that housing characteristics were more crucial drivers than socio-demographic characteristics of housing occupants. Ogu (2002) found that while most housing component variables generally contributed positively to residential satisfaction, environmental variables made negative contributions. Salleh (2008) reported that the neighbourhood factors were the predominant ones affecting the levels of housing satisfaction in private low-cost housing in Malaysia. Mohit et al. (2010) have found that the residents of the newly designed public low-cost housing in Kuala Lumpur are moderately satisfied with housing support services, followed by public and neighbourhood facilities and then by housing features and the social environment, which have a higher percentage of respondents with a low level of satisfaction.

Alison et al. (2002) concluded that although socio-demographic factors were much less important than residential perceptions in helping to predict dissatisfaction, the type of neighbourhood remained a significant independent predictor of dissatisfaction even when residents 'views were considered. Savasdisara et al., (1989) found that dwellers in private low-cost housing in and around Bangkok, Thailand, were generally more satisfied with their housing units than with environmental facilities.

Some studies concluded that housing satisfaction is much higher among homeowners than renters (Lu, 1999; Loo, 1986). Elsinga and Hoekstra (2005) found that homeowners in seven out of eight European countries are more satisfied with their housing situation than tenants are, and that only in one country do homeowners and tenants display a similar level of satisfaction. Even when the quality of the housing unit is similar, owner-occupiers are likely to be more satisfied than renters. This might be

because home ownership gives people a sense of 'self-gratification', making them proud and thereby satisfied with their dwelling units. Nevertheless, Russell (2008a, b) reported that after middle age, residential satisfaction among US tenants increases significantly. Barcus (2004) reported that tenure shift from renting to owning is the only significant variable in predicting residential satisfaction of American urban–rural migrants; individual migrant characteristics and their motivations offered little explanation for the variation in residential satisfaction. Lu (2002) found similar results when modelling the residential satisfaction of intra- and inter-regional migrants. The most likely explanation is that renters have less control over their housing environment and in general have a lower housing quality.

Housing satisfaction also tends to differ between public versus private housing and subsidized versus non-subsidized housing. Public renters were more likely to be satisfied due to the availability of a basic level of amenity, service, and maintenance of their dwellings. However, public renters are more likely to have very low levels of neighbourhood satisfaction because of the location and density of public housing (Lu, 1999). Russell (2008a, b) reported that subsidized renters in the US report higher satisfaction with their housing than similarly situated non-subsidized renters. In multi-family housing in the US, it was found that improvement and addition of dwelling elements had a clear impact on satisfaction, even in rented houses.

Aigbayboa and Thwala (2012) investigated the social and physical factors which influence residential satisfaction in four different government Housing Subsidy locations in Gauteng, South Africa. They found that respondents were satisfied with their overall housing situation but had complaints about certain aspects of the housing unit. However, the respondents informed that most of their housing needs were not being met. Moreover, the study assessed the perceived factors of dissatisfaction amongst the housing subsidy occupants.

A study carried out in Durban, South Africa found that respondents living in inner-city apartments (IC), were most satisfied with their dwellings, those living in Reconstruction and Development Programme (RDP) houses and in informal settlements (IS) were the least satisfied. People living in the IC perceived their health best, while those living in IS perceived it as worst. Major reasons for dissatisfaction

with housing were pest infestation in their dwelling in the past 12 months, inadequate toilet facilities, high temperature, unclean neighbourhood, poor ventilation, and dust. Pest infestation and poor ventilation were mentioned most frequently by flat dwellers whilst RDP, IS and traditional rural houses (TR) households complained about inadequate toilet facilities. For many people living in low socio-economic housing, both housing and service provision remain inadequate (Narsai et al., 2013).

An image merging from the review above is that while various housing, neighbourhood and household socio-economic characteristics influence the level of housing satisfaction, the impacts of these variables as predictors of housing satisfaction or dissatisfaction tend to differ by housing type, tenure, country, and culture. A review of the literature shows that studies on housing satisfaction in South Africa are scant and have a limited scope. This is one of the most ambitious, if not most ambitious effort in South Africa to gauge housing satisfaction considering it is undertaken in 17 selected Municipality's in 3 District Municipalities. Studies we have come in South Africa are often undertaken in a single municipality (for example, in Johannesburg and another study in Durban). Therefore, this study provides a more comprehensive assessment and will enhance our understanding on how these programmes are performing. Therefore, this study fills a gap that currently exists in the literature on social housing in South Africa.

4. Background to the study

Housing is seen as a high priority necessity that improves the quality of life. In 1994 South Africa's democratically elected government inherited a fragmented, unsustainable, and unfair set of housing subsidy programs. These began to be phased out, and a new housing scheme was introduced, agreed upon by a wide range of stakeholders in Botshabelo's Housing Agreement of 27 October 1994. The South African housing subsidy programme (HSS) is based upon worldwide successful experiences. Individual ownership subsidy programs are based on the World Bank model of one-off capital grants targeted at the poor which many governments in Latin America successfully implemented in the 1980s and 1990s. The institutional subsidy program is based on successful European social housing programs. The government has strategically developed and used housing subsidies as a means or tool to tackle the plight of informal settlements in the hindsight of the above policy statement. Thus, the

housing subsidy program is a government-led economic intervention aimed at addressing social issues related to housing by implementing relocation and in-situ upgrading programs.

One of the main goals of the housing subsidy programme is to create a viable low-income subsidy housing market that can assist upward mobility households on the housing ladder (DHS, 2007). More importantly, it aims to bring about sustainable human settlements throughout the country. In addition, the subsidy shares those overall goals with housing policies such as the 1994 Housing White Paper (HWP) and the 2004 Breaking New Grounds (BNG) (National Housing Code, 2009).

There are seven major strategies in the Housing White Paper (1994) which lays out the basis for housing policy and describes the key elements of the National Housing Policy. A main policy applies to the allocation of benefit through the housing subsidy system. This involves the Government of South Africa providing financial aid to the vulnerable in obtaining homes. According to Charlton (2004), the government's subsidy is meant to offset the cost of buying the property, supplying public facilities such as water, sanitation, and roads; and constructing the house or 'top-structure. Since the Housing White Paper followed a market-centred approach, the State is sadly unable to bear the costs.

Outcome 8 of the National Development Plan 2030 commits to the creation of functionally integrated, balanced, and vibrant urban settlements and moving away from the apartheid era service delivery methods. This is a vision that is consistent with provisions of the National Housing Act (107) of 1997. The Human Settlements Portfolio Committee oversight visit to the Mpumalanga Department of Human Settlements conducted in September 2017 identified the following issues as afflicting the implementation of the strategic plans, projects, and programmes (Mpumalanga Department of Human Settlements, 2019):

i.   The Upgrading of Informal Settlements Programme (UISP) had only attained 55% of the MTSF target at the time and the department was performing below the target,

ii. The issuing of security of tenure rights options the department had a deficit of 61 196 against the MTSF target having issued 18 804 title deeds. The challenges here include lack of capacity, low number of proclaimed townships in areas where units are being constructed and insufficient municipal engineering infrastructure required to comply with relevant legislation,

iii. The Finance Linked Individual Subsidy Programme (FLISP) showed that the department delivered 95 subsidies leaving an annual deficit of 4 145 subsidies between 2015 to 2019 . The slow delivery here is attributed to the entry level threshold for the programme which was below the market price and therefore rendering potential beneficiaries being disqualified. Most of the targeted population do not meet the requirements from the developer's perspective,

iv. The delay in implementing the Social Housing Programme was attributed to the failure of the Social Housing institutions to access the subsidy from the provincial department and restructure,

v. Capital grant from the Social Housing Regulatory Authority (SHRA).

In its 2017/18 Annual Report, the Mpumalanga Department of Human Settlements also highlighted that it is faced with challenges relating the effective delivery of projects. These include but are not limited to community unrest, inadequate management of beneficiaries, inappropriate allocation of houses to beneficiaries, slow pace in the issuing of title deeds and inadequate project management.

5. Housing Programme
5.1. Programme Aims

The mission of the Mpumalanga Department of Human Settlements is to facilitate the creation of integrated sustainable human settlements. The Department's strategic goals are the upgrading of accommodation within the informal settlements; improvement of access to basic services; provision of affordable accommodation within the gap market; mobilization of well-located public land for low income and affordable housing; provision of housing for the establishment of integrated sustainable human settlements; and contribution towards vibrant, equitable and sustainable rural communities.

As part of the government's approach to improving performance, Human Settlements Department and other development partners further draw their mandate from Outcome

8 of the National Development Plan (NDP), which necessitates the creation of "Sustainable Integrated Human Settlements and improved quality of household lives. Policy directives as contained in the Integrated Urban Development Framework (IUDF), 2016 form the basis of the department's contemporary approach to development.

Despite experiencing massive budget cuts of its preliminary Medium-Term Strategic Framework (MTSF) allocation, the department forged ahead to render much needed services. To this end, it has delivered 66 792 housing opportunities in its MTSF period, consisting of 28 141 serviced sites; 38 004 individual housing units; 224 social housing units; 321 Community Residential Units (CRU) and 102 Finance Linked Individual Subsidy Programme (FLISP) units. As a way of bestowing property ownership, restoring people's dignity and ensuring security of tenure, 29 053 title deeds have been issued to beneficiaries. Nineteen (19) incomplete townships have been proclaimed and will deliver over 5 000 title deeds. The general scope of work covers the number of houses built since 2015 to 2019 under these programs.

5.2. Upgrading Informal Settlements Program (UISP)

This program is designed to facilitate the in-situ upgrading of informal settlements in a structured way. It includes the possible relocation and resettlement of people on a voluntary and cooperative basis as may be appropriate. This program does not apply to projects embarked upon in terms of any other National Housing Program or any Provincial Housing Programme that is inconsistent with National Housing Policy, nor will it apply to persons currently occupying informal houses/dwellings in the backyards of formal settlements. Informal settlements typically can be identified based on the following characteristics: illegality and informality; inappropriate locations; restricted public and private sector investment; poverty and vulnerability; and social stress. A total of 18 093 housing units were delivered under this programme during the period under investigation.

5.3. Integrated Residential Development Program (IRDP)

The Integrated Residential Development Programme (IRDP) replaced the project linked Subsidy Programme. The programme provides for planning and development of

integrated housing projects. Projects can be planned and developed in phases and provides for holistic development orientation, and 7 9 32 housing units were built.

5.4. People's Housing Process (EPHP)

The People's Housing Process (EPHP) was not generally considered a programme for delivering at scale because of the community engagement element and the way people are involved in building their own shelters. However, the program goes beyond a housing unit and it is about building a cohesive community. It is about transferring skills to people that are part of the process. Hence, the spin-offs of the EPHP are far bigger than the other housing projects. And here, the department delivered 9 032 houses.

5.5. Rural Housing (RP)

Rural Housing: Communal Land Rights was a sub-programme more prevalent in those rural predominantly provinces. The Programme supports the upgrading of government owned communal rental accommodation otherwise known as hostels. The programme aims to facilitate the provision of secure, stable rental tenure for lower income persons/households. Under this housing scheme,4 334 houses were handed to beneficiaries.

6. Methodology

6.1. Theoretical consideration

The reported household satisfaction rating is expected to be based on the utility derived from such a service. A utility theoretical framework is used, in which utility (housing satisfaction, in this case) is a function of actual service performance, as well as socio-demographic characteristics forming expectations. Thus, our framework can be represented by equation 1:

$$U = f(A, E) \tag{1}$$

where (U) represents the utility or satisfaction households derive from housing programme, (A) represents a vector of characteristics describing actual service quality and reliability performance, and (E) is a vector of individual and community characteristics that determine expectations.

Housing beneficiary's appraisal is a measure of the degree to which a housing (quality) performance has met the occupants' expectation in terms of benefits and needs. At the conception of housing occupation, a beneficiary builds some expectations on the performance of the desired housing, the benefits it will provide and the needs it should fulfil. The evaluation commences immediately post occupation, which in turn determines level of satisfaction/ dissatisfaction (Aigbayboa and Thwala, 2014). Based on the foregoing, the work of Bruning, Langenhop and Green (2004) considered housing satisfaction as the gap that exists between residential needs and aspirations and the current residential context. These may include beneficiaries' appraisal of neighbourhood safety, ease of access to areas of interest, the quality of other homes in the immediate area, the desirability of the community, and friendliness/pleasantness of the people in the immediate neighbourhood.

6.2. Selection of variables for measuring housing satisfaction

6.2.1. Dwelling features

The domain of dwelling features relates to house size, function, and indoor environment (Huang and Du, 2015). According to Mohit et al. (2010), in their study of Malaysian housing, dwelling size is positively correlated with residential satisfaction. This is supported by recent Nigerian work (Ibem and Aduwo, 2013; Ibem and Amole, 2013a;b) which similarly suggests the sizes of living and sleeping areas is a strong predictor of residential satisfaction. In the Australian context Baker (2008) found that adequate dwelling size has also been shown to be a key component of residential satisfaction.

In the Chinese context, dwelling size has been shown to be associated with residential satisfaction (Wang and Wang, 2016), however less attention has been paid to the role of dwelling size in residential satisfaction for migrant workers in temporary housing in China (Li et al. 2014a, b). Li et al. also suggests that varying needs and preferences for dwelling size exists for different groups. Beyond dwelling size, the features of the indoor environment are important for residential satisfaction (Zalejska-Jonsson and Wilhelmsson, 2013). An Australian study of public housing tenants relocated for a large-scale urban regeneration project highlights substantial improvement in residential satisfaction following housing quality improvements (Baker and Arthurson, 2007). Functionality is another significant factor affecting residential satisfaction, this includes

the provision of adequate kitchen space, laundry and washing areas, sizes of living areas and dining areas (Teck-Hong, 2012).

6.2.2. Dwelling facilities

Within the dwelling, the adequacy of provision of facilities and services such as electricity, power, water, and telecommunications has been shown to be a principal component of residential satisfaction. For instance, such facilities were found to be positively correlated with the residential satisfaction among public housing tenants in Malaysia (Mohit et al., 2010). Perhaps unsurprisingly, the importance of this element of residential satisfaction appears to be highly contextualised. While it is an important component of residential satisfaction in studies focussed on developing areas and national contexts, it is a rarely included or highlighted in studies of residential satisfaction in places where the provision of such services is established or an assumed right.

6.2.3. Public facilities

Access to public facilities, such as education, public transportation, cultural, sport and recreational facilities, parking, health care and commercial facilities, have been adopted as one of the critical factors affecting the evaluation of housing adequacy across many studies and national contexts (Ibem and Alagbe, 2015; Li et al., 2014a, b). For example, recent work in China by Huang and Du (2015) finds that public facilities not only determine the degree of life convenience, but also have significant influence on residential satisfaction. Wang and Wang (2016) also suggest a noteworthy relationship between facilities in the local area and residential satisfaction. The importance of access to public facilities for residential satisfaction appears to vary across different countries. For instance, Ibem and Amole (2013a) suggest that most residents of public housing in Nigeria had low satisfaction with infrastructure facilities. By contrast, Mohit and Nazyddah (2011) study found that residents of public housing in Hulhumale, Maldives, were more satisfied with their public facilities than with their housing conditions.

6.2.4. Neighbourhood environment

Neighbourhood environment is viewed as a dominant predictor of residential satisfaction, this includes attributes of estate management and services, safety and security, distance to workplace, and social networks (Adubal, Ghani and Salleh, 2008;

Fernandes et al., 2018). For example, neighbourhood satisfaction has been shown to be influenced by work opportunities in the neighbourhood environment (Cai and Lu, 2015; Teck-Hong, 2012), and longer distances travelled for work have been related to neighbourhood dissatisfaction (Mohit and Mahfoud, 2015; Wu et al., 2017).

Among low-income households, the impact of an employment/residential spatial mismatch has been described as a 'passive jobs-housing mismatch', where subsidised rental housing tends to be located away from low-income employment opportunity, and tenants absorb longer commuter distances to keep low-cost housing (Zhou et al., 2015; Wang and Pan, 2018; McCoy et al., 2018). As the public facilities (such as outdoor lighting, road drainage and landscape facilities) and areas (for example open spaces) are co-owned and shared by residents, the security, repair and maintenance, cleaning and related services, and management are crucial to perceived residential satisfaction. Satisfaction of the users with these facilities and areas is dependent on their performance, which depends heavily on their design provision, constructed quality and quality of services provided for managing them throughout the occupancy stage (Lai, 2011).

6.2.5. Housing policy

It is well recognized that broader housing policy related to housing allocation, acquisition, affordability, and tenure, affects residential satisfaction. For instance, as Chen et al. (2013) suggest, the level of freedom one enjoys in choosing his or her dwelling can impact on residential satisfaction. Allocation policies of public housing providers determine entry and the ability of individuals to relocate within the public stock, and this freedom of choice has been shown to influence residential satisfaction (Huang and Du, 2015). There is also a statistical association between housing satisfaction, and the mode of acquisition of residence (Teck-Hong, 2012). Further, Cai and Lu (2015) found that improving housing affordability for public housing residents was beneficial. Tenure security has been well established in several studies to be important in the creation and maintenance of residential satisfaction. More basically, Zaviana and Gerber (2016) present broad cross-national evidence on the importance of tenure security in the creation of satisfaction and wellbeing.

6.2.6. Socio-demographic characteristics

Overarching all the housing and neighbourhood domains, socio-demographic characteristics (Huang and Du, 2015), such as age (Lu, 1999), gender (Ibem and Amole, 2013), household composition (Dekker et al., 2011), household size (Mohit et al., 2010), tenure (Ogu, 2002), length of residence (Mohit et al., 2010), education and marriage status (Ibem and Aduwo, 2013) have all been shown to have significant influence on residential satisfaction. Among these, income status is regarded as a dominant influence, because it affects the ability of households to realize housing goals as well as make broader residential choices within the housing market (Baker et al., 2015; Lu, 1999). The above review of studies shows that various factors within several domains affects residential satisfaction, and that the relative strength of these effects are likely to vary across different cohorts and contexts. This implies that research examining residential satisfaction should be contextualised and specific to provide policy relevant evidence.

6.3. Derivation of the model

The study's approach is focused on statistical analysis, which involves multiple regression analysis in this case. This method of analysis is used to model and analyse many variables. Multiple regression analysis is a form of regression analysis that describes the relationship between several independent variables and a dependent variable (Constantin, 2006). It is a method for predicting and forecasting that studies the simultaneous effects that certain independent variables have over one dependent variable (Lefter, 2004). The multi-factorial regression model is more practical than the uni-factorial regression model (Goschin and Vatui, 2002).

Multiple regression is used to assess the associations between two or more variables with cause-and-effect relationships. "Are there any connections between dependent and independent variables?", "If there are any relations, what is the influence of the relation?" and "If certain factors are controlled, what impact does a special variable or group of variables have over another variable or variables?" are some of the questions addressed in this study. In a multiple regression analysis, an attempt is made to account for the variation of the independent variables in the dependent variable synchronically (Unver and Gamgam, 1999). Multiple regression analysis model is formulated as in the following in this study.

$$y = \beta_0 + \beta_1 x_1 + \ldots + \beta_n x_n + \varepsilon \qquad\qquad (2)$$

y=dependent variable

β_1=parameter

x_1=independent variable

ε=error term

Selection of explanatory variables: The selection of explanatory variables for this study is guided by the past research on residential satisfaction. Three groups of variables are considered. The first group includes variables representing individual and household attributes, such as age, sex, race, educational attainment, tenure, household income, and duration of residence. Household type is included in the analysis to control for possible differences in the assessment of same housing conditions by individuals with different household background. Based on the presence or absence of two fundamental family components—spouse and children—households are classified into five mutually exclusive types: single- person, single-parent, married couple without children, married couple with children, and other households. Individuals 'recent mobility experience is also considered, which refers to whether an individual had moved to the current residence in the last 12 months.

The second group of variables is comprised of housing variables. Whether the housing is publicly owned, percentage of housing cost in household income, property value, housing adequacy are included. Previous studies have shown that housing quality problems often have significant effects on residential satisfaction. But there are dozens of variables that relate to housing quality and it would make the model very cumbersome if all of them were included. Instead, this study relies on a summary measure of housing quality compiled by the (UISP). It considers housing conditions such as walls, roof, and floor. The index includes three levels: adequate, moderately inadequate, and severely inadequate (Hadden and Leer, 1990).

This summary measure of housing quality has its limitations, but it does indicate the overall quality of housing. In addition, a room stress index is created. The index is defined as the ratio between the actual number of rooms (excluding bathrooms) in a

housing unit and the required number of rooms based on household composition. The latter is calculated using a simple rule: two rooms for a prime adult or a couple (husband and wife) in a household, with an extra room for each additional couple or single adult age 18 or over, one room for two youngsters (between ages 10-17) of the same sex, and one room for each pair of children under age 10 regardless of gender. Such index has been commonly used to measure the relative scarcity or abundance of housing space and has been demonstrated to have a significant effect on households 'assessment of residential conditions (Davies and Crouchley, 1984; Lévy-Leboyer, 1993).

Large values of the index indicate that more space is available than required by the household. While in general the independent variables are used in the housing satisfaction models, housing adequacy, housing cost, and room stress are only used to explain housing satisfaction.

In conclusion, the model is based on the notion that housing satisfaction is a composite construct of the indices of satisfaction which respondents perceive with their housing characteristics and relevant support services, public facilities, social, environment and neighbourhood facilities. According to Amerigo and Aragones (1997), once the objective attributes of the housing environment have been evaluated by the individual, they become subjective, giving rise to a certain degree of satisfaction. Subjective attributes are influenced by the subject's socio-demographic and personal characteristics as well as his/her housing quality pattern, a normative element whereby the individual compares his/her real and ideal housing environment. The model sheds light on the respondents 'evaluation of objective attributes of housing through their socio-economic and demographic characteristics become subjective attributes.

7. Survey

7.1. Survey

Due to unavailability of secondary data, we conducted surveys as a means of collecting data. Surveying as a scientific approach is often misconstrued, and, while a survey seems easy to conduct, ensuring that it is of high quality is much more difficult to achieve. We opted for an "explanatory survey", considering our interest in explaining or predicting several relationships (i.e., housing) between some respondent characteristics and welfare. Thus, the design is primarily quantitative (except for the

administrators which was qualitative), involving the use of inferential statistics such as regression to quantify the extent to which certain respondent characteristics lead to or are associated with specific outcomes.

Our surveys take on a cross-sectional design and involve multiple cohorts of respondents. In cross-sectional designs, the survey takes place at one point in time giving a snapshot of the participant responses. Considering the nature of our quantitative surveys, we need to define the dependent and independent variables to be investigated. A dependent variable refers to the perceived outcome that is measured, whereas an independent variable refers to a respondent characteristic that may influence the outcome.

In terms of data collection, our surveys were conducted by questionnaire. The questionnaires were administered in-person. One of the advantages of face-to-face surveys is that it achieves relatively higher response rates; better suited to collecting complex information; more opportunities to use open-ended questions and to probe respondent answers; the enumerator can immediately address any concerns participant have about the survey and answer their questions. Some of the disadvantages are that it is costly; time-consuming and respondents may be reluctant to share personal or sensitive information when face-to-face with an interviewer. Pretesting and/or pilot testing of the instrument was done with a small number of individuals to ensure its content, flow and instructions are clear, consistent, appropriate, and easy to follow.

7.2. Sampling

As indicated earlier, a sample of all beneficiaries that benefitted from the Mpumalanga Department of Human Settlements Housing programme between 2015 and 2019 would be selected to represent the total population. We used probability sampling, i.e., the selection of participants from the Mpumalanga beneficiary population was determined by chance, with everyone having a known, non-zero probability of selection. This provides for an accurate representation of the beneficiaries; hence findings can be generalizability. Probability sampling can take three main forms, simple random sampling, stratified sampling, and cluster sampling.

We opted for random sampling, a randomly selected subset of all the beneficiary population. In this sampling approach, each member of the beneficiary population has an exactly equal chance of being selected. This approach is the most straightforward of all the probability sampling techniques since it only involves a single random selection and requires little advance knowledge about the population. Because it uses randomization, any research performed on this sample should have high internal and external validity.

In practical terms, our simple random sampling comprised of four steps: defining the population, constructing a list, drawing the sample, and contacting members of a sample.

The first step (defining population before a sample was taken) was straight forward as the Department provided list of housing beneficiaries between 2015 to 2019 from the four programmes from its National Housing Needs Register (NHNR) database. The 3 Districts and 17 Municipalities were already identified by the Provincial Department of Human Settlements. Construction of list before a sample could be chosen was also straight forward. The Department provided us with list of all beneficiaries during period under study. Therefore, we targeted all housing beneficiaries from the four programmes as detailed in the Department beneficiary database. The database and list we were provided was recent, accurate and exhaustive.

Thirdly, we drew a sample after a list of the beneficiaries had been constructed. However, this proved difficult given the large sample of beneficiaries. We also tried selection using statistical computer programme. During our pilots, we had difficulties in our final step, which required us to contact members of the sample as we did not always have their contact details, some had moved and vastly dispersed areas. We therefore resorted to new approach, random spatial sampling methodology. It is useful especially in rural areas in developing countries (see Kondo et al. 2014). We identified neighbourhoods to survey, and once we went to those areas, enumerators randomly went from house and house (of beneficiaries) and surveyed those who were present. Simple random sampling is used to make statistical inferences about a population, in this case the MDHS housing beneficiaries. It helps to ensure high internal validity: randomization is the best method to reduce the impact of potential confounding

variables. Moreover, with a large enough sample size, a simple random sample has high external validity: it represents the characteristics of the larger population.

However, simple random sampling can be challenging to implement in practice. To use this method, there are some prerequisites:

- You have a complete list of every member of the population, *which we have*.
- You can contact or access each member of the population if they are selected.
- You have the time and resources to collect data from the necessary sample size.

Simple random sampling works best if you have a lot of time and resources to conduct your study, or if you are studying a limited population that can easily be sampled. In some cases, it might be more appropriate to use or consider a different type of probability sampling. In our case, we also considering cluster sampling.

7.3. Sample Size Determination

The sample design is one of the most important activities in every impact evaluation. The sampling strategy should be carefully planned to guarantee enough statistical power to allow identification of project impact as well as to analyse the heterogeneity of impact. Different types of projects can have diverse effects on different types of beneficiaries. Therefore, it is appropriate to identify and measure these heterogeneous outcomes separately. To accomplish this, stratifying the sample to assure representativeness within different groups in the population (strata) is advisable. For instance, it might be in the best interest to obtain estimates of the impact by region, or area. To be confident that inference for every of these subgroups is statistically valid, stratification is recommended.

To assure enough statistical power to identify the programme's impact, this study relies on the power formula (see World Bank, 2007). The power formula is composed of four pieces of information: (i) expected effect on outcome variable; (ii) outcome variable's standard deviation; (iii) confidence level (usually 95%), and (iv) statistical power. The power formula according to the World Bank, (2007) for evaluating the impact of the housing settlement evaluation programme is as follows:

$$N = 4\sigma^2 \left(\frac{Z_\alpha - Z_\beta}{D^2} \right)^2 \qquad\qquad (3)$$

where D = is the impact on the outcome variable measured as the difference in means, σ= the standard deviation,

Z_α= the critical value of a confidence interval (two tail test=1.96),
Z_β= the critical value of the statistical power (two tail test=1.28).

With a calculated standard deviation of 5 830, 11 and a 10% average impact of programme (World Bank standard), the sample size from the formula is 3 939. This works out to surveying 3 939 housing recipients. Table 1 shows the number of beneficiaries of the four programmes per local municipality that were interviewed.

Table 1: Sample of beneficiaries per local municipality

Municipality	Upgrading informal Settlement (UIP)	Integrated Development Programme (IDP)	People's Housing Process (EPHP)	Rural Housing Projects	Total
EHLANZENI DSTRICT MUNICIPALITY					
City of Mbombela Municipality	38	146	33	78	294
Nkomazi Municipality	0	0	178	112	290
Thaba Thewue Municipality	41	50	0	39	131
Bushbuckridge Municipality	41	0	202	70	314
Total	**120**	**196**	**413**	**300**	**1029**
GERT SIBANDE DISRICT MUNICIPALITY					

Chief Albert Lutuli Municipality	60	2	147	29	239
Dipaliseng Municipality	65	32	50	0	147
Mkhondo Municipality	45	18	59	30	151
Mugaligwa Municipality	144	78	0	5	227
Pixley KaSeme Municipality	110	7	83	18	218
Govan Mbeki Municipality	488	17	0	5	510
Lekwa Municipality	102	82	0	0	184
Total	**1014**	**235**	**339**	**88**	**1675**
NKANGALA DISTRICT MUNICIPALITY					
DR JS Moroka	0	0	157	58	215
Emkhazeni Municipality	21	51	0	0	72
Emalahleni Municipality	569	244	0	0	812
Thembisile Municipality	0	0	219	36	255
Steve Tshwete Municipality	89	144	11	0	243
Victor Khanyi Municipality	230	0	11	0	241
Total	**908**	**438**	**398**	**94**	**1838**

The table above shows that our target sample in the three districts is 3 939 respondents. However, Bushbuckridge municipal official we contacted refused to assist, hence it is the only municipality that was not sampled. Despite this challenge, we ended up with a larger total sample size even with one less municipality. As can be seen in table above, some of the programmes are not implemented all together in some municipalities, hence

it may seem like they were not sampled in some areas. The reality is that they are instances where there are no one to sample because programme was not implemented, hence we are also putting "dash" and not zero, to signal that it is missing.

8. Hiring & Training of Enumerators

8.1. Survey Implementation

A face-to-face survey is a very expensive undertaking that involves an important logistic effort; it is vital that the enumerators are in the field at the right time for gathering the desired data. BKZ Consulting put considerable effort and resources towards putting in place a plan, and this was done well ahead so that the surveys were conducted at the proper time. Unfortunately, due to COV19, our plans were disrupted as most municipalities in our sample could not even be reached for us to do handovers virtually using Microsoft Team/Zoom. There was thus a need for face-to-face visits to those municipalities that could not be contacted virtually.

As a result of COV1D 19, handovers only began when the country went to Level 4 of Lockdown. With the assistance of department, handovers were arranged and successfully carried out at the 3 District Municipalities – Ehlanzeni, Gert Sibande and Nkangala Districts (*at the 17 Local Municipalities in the sample*). The handovers took place in November 2020, except for Emalahleni Local Municipality which was only finalized in early December. The handovers involved the MDHS team introduction of BKZ 37 Consulting and Scope of the Work. The BKZ 37 Team then introduced BKZ to the duly delegated Municipal Officials and touched on various aspects including their plan on execution of the project, survey, and sampling strategy. BKZ then formally requested assistance with the list of Enumerators and set out criteria for ideal Enumerator. It was agreed at handover meetings that generally, qualified people from each locality of the survey area who have done similar work (i.e., surveys) make the best enumerators.

Municipal Officials then requested BKZ submit formally written request (*see Appendix C*) as well as the survey instrument – questionnaire (*see Appendix B*). BKZ sent request as well as all required supporting documentation via email shortly after the handover engagements. The response time from the Municipalities thereafter varied widely, some sent lists within days while some after weeks, and at times after subsequent meetings

as was the case with Mbombela Local Municipality. The varying response times impacted on the surveys to varying degrees. Nonetheless, the most important thing is that the Engagements were finalised as of 30th November 2020 (except for Emalahleni as already indicated above). Based on the sample frame, we created plans for implementing the sample design and training of staff to implement the designed sample. In consultation with the Local Municipalities, we identified eligible enumerators as per BKZ requirements and trained the requisite number of enumerators (field workers) to ensure that the survey is completed as per agreed schedule. We took responsibility that all field operations, including logistical arrangements for data collection and obtaining the consent of respondents is carried out accordingly.

BKZ Consulting obtained maps and housing programmes beneficiary records as required. We constantly updated the Project Manager about the progress of the fieldwork at the end of each week. Our updates included the number of surveys competed, problems encountered, and how they were resolved (for example, the number of replacement households and why they were necessary) and the number of questionnaires entered in the data entry software. The enumerators' responsibilities included:

- Visiting of the selected households/respondents and ensuring their participation.
- To conduct face-to-face interviews with the selected respondents.
- Record the answers accurately in the tablets.
- Ensure completeness and accuracy of answers; perform accuracy checks on the questionnaires.
  Safeguard the confidentiality and privacy of the collected information.

The responsibility of BKZ Supervisors included:

- To explain clearly to each enumerator their duties and responsibilities.
- Assist enumerators in securing the participation of households/respondents if necessary.
- Provide all logistical support and material to enumerators.

- Supervise all activities of assigned enumerators during the data collection process through spot checks and call backs.
- Ensure that the interviewers undertake the survey with the households/respondents chosen for the sample without substitution.
- Provide replacements for non-response.
- Assess the quality of the work of the enumerators and the quality of data from each completed questionnaire.
- Check completed questionnaires in the server, ensuring that enumerators did not overlook inconsistencies and skip patterns.
- Spot-check and call back participating households/respondents.
- Provide feedback to enumerators on quality assurance and methodology requirements.
- Liaise and report activities to the BKZ Research Director and compile and send weekly reports on survey progress to the Associate Research Director.

8.2. Hiring and Training of Supervisors and Enumerators

This section of the Draft Report outlines roles and responsibilities of BKZ as the appointed consulting firm with regards to training field workers. Our responsibility included:

Selection and training of field workers: This activity consisted of all the work required to develop training materials for all staff involved in the fieldwork and training of field workers so that they understand the content of the questions, the layout, and strategy of the questionnaires.

Participation in training sessions: The survey manager, supervisors, interviewers, and data analysts participated in training sessions that were held at the same time in few selected central locations. BKZ made all logistical arrangements including interpretation and meeting the cost of the training. The training ran for fourteen days. The training sessions were conducted by the Research Director/s and covered topics such as:

- Debriefing on the objectives of the survey, quality control mechanisms, and overall conduct of the project.
- Detailed explanation of each question so that enumerators can interpret all questions consistently and ask all questions in the prescribed manner with informed explanations to help respondents in case of difficulties.
- Instruction on how to properly use electronic survey instrument (tablets) and submitting the survey to our online servers once questionnaire is completed.
- Approaches to secure participation, interviewing techniques, how to handle difficult situations and common occurrences, and probing.
- Mock interviews to test the interviewers.
- A dry run in the field and a recap of experience after this dry run.
- Logistics and schedules.

Selection of interviewers: BKZ invited to the training sessions more interviewees than planned to be fielded. At the end of the pilot, all candidates were evaluated and only those interviewees who were deemed adequately prepared to carry out such a survey were retained for the actual field work. In evaluating the candidates, we considered three minimum selection criteria: previous experience in similar surveys and ability to handle face-to-face interviews, education levels, and availability throughout the duration of the fieldwork.

Provision of interviewee list: We provided a list of all participating interviewees, both selected and not, with corresponding characteristics (years of experience, level of education, evaluation during the training/pilot) to the Project Manager. Because a few staff may prove to be unsuitable during the fieldwork, it is advisable to train extra staff. *Refinement of questionnaire*: BKZ made some adjustments to few questions following the pilot survey (testing stage). In this instance, it was BKZ's responsibility to hold a brief follow-up training session to ensure that all enumerators and supervisors understood the additional questions or changes to the questions before the actual survey is launched in the field.

We required that the enumerators must be able to read and understand the survey instrument, maps, and beneficiary records. Given the sample of 3 939 beneficiaries, we

hired approximately 76 fieldworkers to work across the 16 Local Municipalities. We also hired "Supervisors", and this was done prior to hiring enumerators. They were trained in Johannesburg *before* the enumerators. The training for supervisors was intense and demanding. Although their topics covered were generally the same as for enumerators, a short quiz was devised on their reading comprehension, ability with arithmetic, and aptitude for learning to use maps and photography. The supervisors also attended and assisted with enumerator training.

Enumerator training was carried out in pleasant areas without distractions with proper seating and teaching facilities. For that, BKZ Consulting would like to sincerely thank Municipalities such as *Govan Mbeki, Dr JS Moroka, Emakhazeni, Mkhondo, Emalahleni, Chief Albert Luthuli, Thembisile, Steve Tshwete, Victor Khanyi and Dipaliseng Local Municipalities* for making their Boardrooms available to us for training purposes. During the training, it was made clear to enumerators that they are expected to learn by checking and criticizing their work. Also, we kept names of potential reserve enumerators in case they are needed due to losses during the survey through illness, weather.

The following lists subjects that were covered in enumerator training, however it is not exhaustive, but outlines the type of coverage in the course. The training and the actual work are like that in any other beneficiary housing survey except for learning how to work with the photography and using the segment as a guide for the application of the questionnaire. We are confident based on our own assessment and feedback we obtained at the end of training that the enumerators understood the importance of obtaining a response for each question on the questionnaire from every respondent in the sample.

1. Purpose of the Survey - to explain this to the respondents the enumerator must understand and believe in the purpose of the survey, and how the survey is beneficial to the respondent and the MDHS and the Local Municipality,
2. Responsibilities as enumerators,
3. Interviewing techniques,
4. Definitions and sampling procedure - one of the first questions a respondent asked is " why did you pick me for this?" and neighbours often asked, "why

didn't you pick me?" An understanding of the sampling frame and sample selection process allowed the interviewer a means of answering these kinds of questions,

5. <u>Enumeration procedures and use of beneficiary records such as locations, plot number and names, and maps,</u>

6. <u>Questionnaire in detail (line by line),</u>

7. <u>Practice interviews (role playing)-</u> this included both acting as interviewer and recording answers on the questionnaire from a simulated interview. The filled-out questionnaires were checked, and errors pointed out,

8. <u>Field practice -</u> this is usually carried out near the location of the training venue at cooperative households, ideally chosen and notified in advance. The trainees worked in teams and each person had the opportunity to do an interview,

9. <u>Critique of field practice -</u> the teams were encouraged to do a critique of their own members. Supervisors were given the opportunity to make comments. An overall evaluation was presented by the survey supervisor,

10. <u>Administrative procedures -</u> the enumerators were made aware of the importance to know how, when and where they were to be paid and the records that must be turned in to receive their salaries such as EPWP Daily Attendance and Register. Enumerators were made aware of how to contact supervisors in case of difficulty and extraneous events affecting the enumeration.

Maps/Beneficiary lists showing the location of sample segments were prepared for each region. A file copy that stays in our offices and a copy for the field were needed. Segments were outlined during training. Up to date road maps were made available to the supervisors and for each enumeration team.

Each enumerator was provided with a clipboard, a scratch pad, pencils, and soft block and erasers. A transparent grid to assist in estimating areas was also provided. To minimize confusion, enlargement scales were kept constant. Finally, we provided enough control sheets, questionnaires, and segment envelopes to cover the number of assigned segments plus extras.

Supervisors were given a clipboard, a scratch pad, a box of common pencils, black ball points, a box of coloured pencils, 3 or 4 soft white block erasers and a transparent grid

to assist in estimating areas, and a calculator. The supervisors were also given extra pencils, grease pencils and erasers. Moreover, the supervisors also maintained a supply of questionnaires, control sheets and segment envelopes.

9. Whole Sample Descriptive Statistics

Household surveys were undertaken in the 3 District Municipalities (i.e., 16 of the 17 Municipalities) in Mpumalanga – *refer to Appendix A for Surveys on Officials (i.e., both Municipal and Departmental*. The data were gathered through face-to-face interviews from October to December 2020. Sample size determination took into consideration the elicitation format, as well as the budget and COV 19 constraints. A total of 3 939 housing beneficiary households were interviewed.

The descriptive statistics of the surveyed households are presented in two separate section, this section (i.e., 9) based on the whole sample, and next section (i.e., 10) programme specific descriptive. Where the respondents were household members other than the heads, their responses were interpreted as coming from the heads themselves. Table 2 is a summary of the socio-economic characteristics of the overall respondents in the housing unit survey.

Table 2: Respondents' demographic and socio-economic characteristics

Variable	Obs	Mean	Std. Dev.	Min	Max
Gender					
Female	4,058	0.641695	0.479561	0	1
Male	4,058	0.358058	0.479488	0	1
Marital Status					
Legally married	4,025	0.143354	0.350477	0	1
Living together	4,025	0.23528	0.424226	0	1
Divorced	4,025	0.030062	0.17078	0	1
Separated, but still legally married	4,025	0.019379	0.13787	0	1
Widowed	4,025	0.090186	0.286484	0	1
Single	4,025	0.481739	0.499729	0	1
Age of HH	4,082	48.244	15.26058	16	103
HH Members	4,060	4.407389	2.203615	1	25
HH <18	3,431	2.017838	2.699218	1	12
HH >60	2,041	2.589417	0.804379	1	9
HH Education Level					
No education	4,008	0.000998	0.031579	0	1
Primary	4,008	0.345559	0.47561	0	1
Secondary	4,008	0.528194	0.499267	0	1
Tertiary education	4,008	0.12525	0.331043	0	1
Gross Income					
Do not Know	4,171	0.38504	0.486663	0	1

Refuse to answer	4,171	0.1158	0.320023	0	1
3001-5000	4,171	0.377607	0.484847	0	1
5001-20000	4,171	0.078159	0.268453	0	1
20001-40000	4,171	0.023016	0.149972	0	1
40001-75000	4,171	0.010789	0.10332	0	1
> 75000	4,171	0.00959	0.09747	0	1
INCOME	4,170	7169.668	25076.53	0	750000
Occupation					
Formal employment	3,899	0.350603	0.47722	0	1
Self employed	3,899	0.105412	0.307123	0	1
Student	3,899	0.033085	0.178883	0	1
Retired	3,899	0.098487	0.29801	0	1
Others	3,899	0.400872	0.490138	0	1
Unemployed	3,899	0.011541	0.106823	0	1
Length of residency	3,909	22.65081	20.83786	1	57

As Table 2 shows, approximately 64% of the respondents are female heads of families and the rest are males. Cohabiting relationship constitute nearly 24% of the total number of families. The average age for respondents of all housing schemes is aged 48 years old, and it comes as no surprise that majority (around 82%) of all respondents have children below 18 years old. Households with the elderly account for 49% of total sample. Although the average bedroom occupancy is less than 2 in all housing schemes, an average household size is roughly 5 family members.

While only 13% of the respondents in housing have tertiary education, the percentage of those without post primary school education is significant (around 35% each). This low level of education is also reflected in the low level of family income, averaging

R7 179.67 per annum, which applies to 38% of the respondents in the four housing schemes. It is worth noting that a significant proportion of the respondents, around 51% did not disclose their income. Around 35% indicated that they were employed, while 11% were self-employment, which shows significant economic activity even though formal employment opportunities seem limited. A relatively longer length of residency is observed among all respondents.

Considering houses under investigation were delivered between 2015 – 2019, the range of 1 to 57 years occupancy in residency shows that they were misinterpretation of this question. We expected this range to be between 3-6 years. Figure 1 shows the tenure status of the beneficiaries.
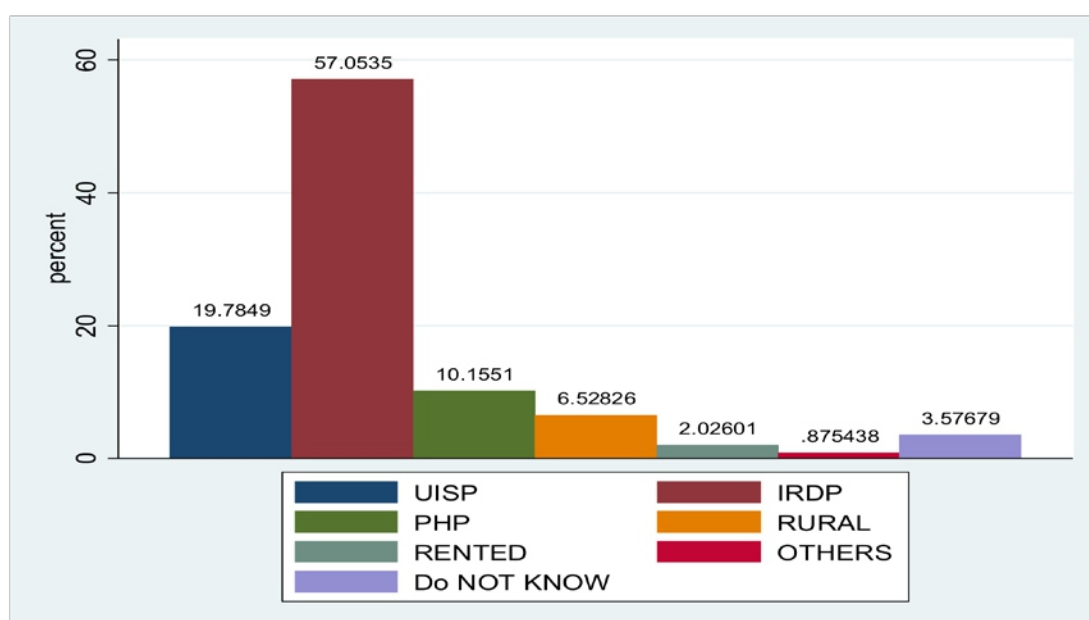

Figure 1: Percentage distribution of main dwelling ownership status

Approximately 57% of all surveyed households benefitted from the IRDP programme, followed by the UISP (i.e., about 20%). It is not surprising given rapid urbanization in the South Africa that the Rural Housing programme is the least popular. Most interestingly, a small but significant (around 7%) proportion of occupants of the housing programme houses indicated that they were not intended beneficiaries. Around 2% were renting, while around 4% did not want to disclose their tenure status. Figure 2 shows average number of rooms in each dwelling.
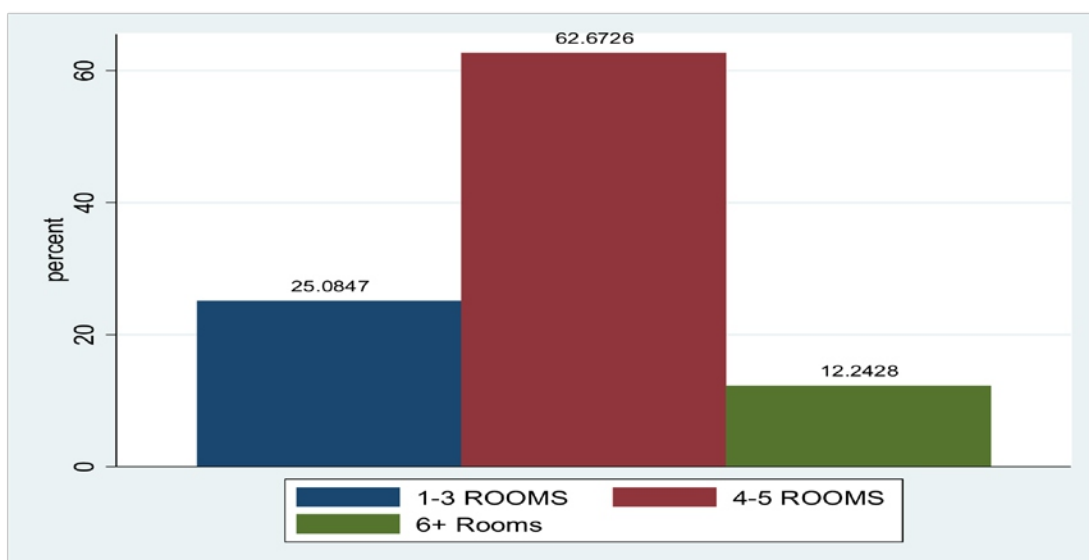
Figure 2: Average number of rooms

In terms of the general number of rooms for all 4 programmes, about 63% of beneficiaries lived on average in a 4-5 rooms, which is consistent with design specification for the 4 housing schemes. Over 15% of respondents stayed in homes with over 6 room, which suggests that there is a significant number of beneficiaries who require more than what the housing units from the departments offer. Figure 3 on the other hand shows overall housing satisfaction rated by four beneficiary groups.
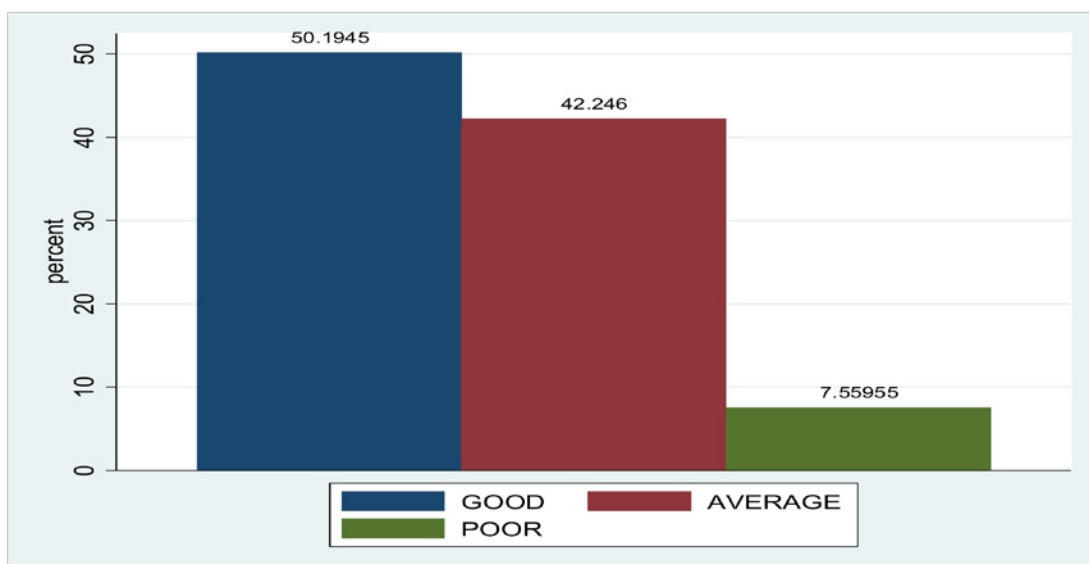

Figure 3: Rating the overall quality of main dwelling

On average, half of the respondents from the four programmes in the three District Municipality are satisfied with the quality of their houses, while around 42% thought it

was average. Interesting, only 8% thought the houses were of poor quality. This finding is very important as it shows that the quality of houses delivered by the Department is of good quality. Now that we have a good idea of the characteristics of our sample and their general view about the standard of the houses, it is vital that we dig deeper into the programmes to see their relative performance. This is done in the next section below.

10. Housing Programmes Descriptive Statistics

10.1. Upgrading Informal Settlements Programme (UISP)

In this section we present in-depth analysis of the UISP programme. The Department of Human Settlements establishes its own benchmarks, under the Housing Code for identifying informal settlements, which is based on the following characteristics: "(a) illegality and informality, (b) inappropriate locations, (c) restricted public and private sector investment, (d) poverty and vulnerability and (e) social stress (The Housing Code 2009).

Therefore, any settlement that exhibits the above features can be qualified as an informal settlement as per the 2009 National Housing Code. Overwhelming evidence suggest that, a well-administered slum upgrading, has significant linkages with the socio-economic well-being of the poor in every society (UN Habitat Working Paper, 2003). It can help in combating poverty and vulnerability, achieving sustainable human development, and promoting environmental sustainability (Global Report on Human Settlement Revised, 2010). We start with presentation of the socio-economic characteristics of beneficiaries under this programme.

Table 3: UISP respondents' demographic and socio-economic characteristics

Variable	Obs	Means	Std. Dev.	Min	Max
Gender					
Female	943	0,636267	0,481328	0	1
Male	943	0,362672	0,481027	0	1
Marital Status					
Legally married	941	0,127524	0,333736	0	1
Lining together	941	0,300744	0,458825	0	1
Divorced	941	0,026568	0,160901	0	1
Separated but married	942	0,023379	0,151186	0	1
Widowed	941	0,069076	0,253717	0	1
Single	941	0,45271	0,498023	0	1
Age of HH	936	46,36966	14,4073	16	100
HH members	935	4,350802	1,988978	1	11
HH<18	803	3,073474	2,686594	1	8
HH>60	433	1,385681	0,688179	1	5
HH Education Level					
No education	942	0,003185	0,056373	0	1
Primary	942	0,307856	0,461852	0	1
Secondary	942	0,542463	0,498458	0	1
Tertiary	942	0,146497	0,353791	0	1
Gross income					
Do not know	964	0,389004	0,487777	0	1
Refused to answer	964	0,133817	0,340633	0	1
3001 − 5000	964	0,349585	0,477086	0	1
5001 − 20000	964	0,08195	0,274431	0	1
20001 − 40000	964	0,023859	0,152689	0	1
40001 − 75000	964	0,010373	0,101373	0	1
>75000	964	0,011411	0,106265	0	1
Gross income	957	7684,296	30213,58	0	75000

Occupation					
Formal employment	891	0,359147	0,48002	0	1
Self employed	891	0,103255	0,304462	0	1
Student	891	0,03367	0,18048	0	1
Retired	891	0,068462	0,25268	0	1
Others	81	0,411897	0,492453	0	1
Unemployed	891	0,023569	0,151787	0	1
Length of residency	896	25,875	18,89719	2	57

The socio—demographic profile of beneficiaries in this programme consistent with our overall sample in that majority of respondents are male, cohabiting relationships are most common. The average household income also similar and so is age, although slightly younger by 2 years. In figure respondents' views pertaining to the quality of houses they obtained from this specific programme.
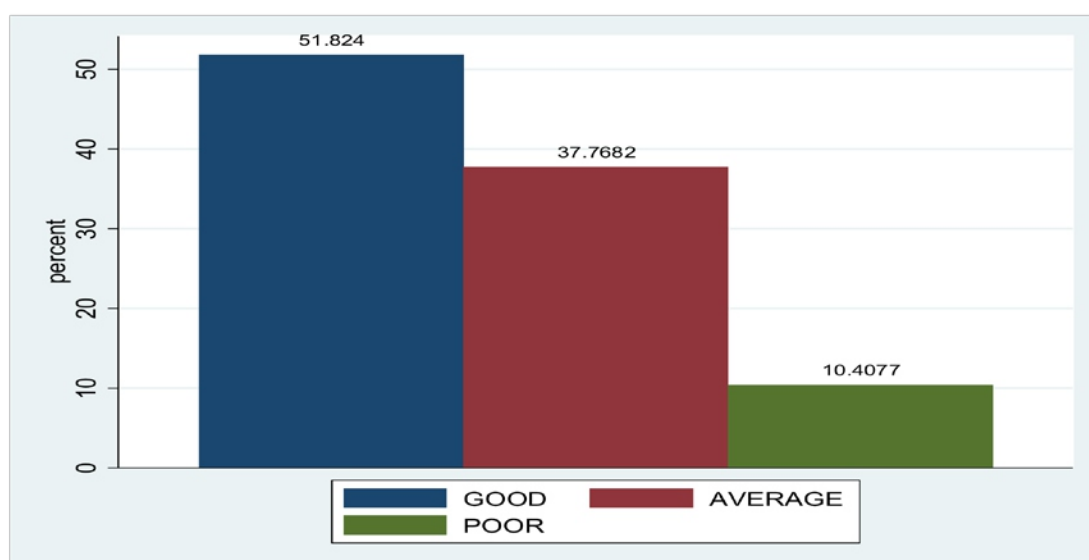

Figure 4: UISP quality of housing

The variation in response comes as no surprise as it has been shown in the literature that when the gap between what is expected and what is received decreases; residential satisfaction increases (Darkwa 2006). Therefore, beneficiaries 'satisfaction with the quality of housing units could have been affected with the more of their expectations not being met. In addition, satisfaction being a subjective evaluation relies heavily on

the beneficiary's views, perceptions, previous experiences, behaviour, norms, values and emotions, and a complex construct, affected by a variety of environmental and socio-demographic variables. Therefore, beneficiaries 'rating of housing quality could have been influenced by these factors.

In terms of the condition of housing walls under the UISP, most beneficiaries, representing about 35% stated the walls of their housing unit is in good condition. More so, about 14.5% of beneficiaries indicated the wall of their housing unit is very good.
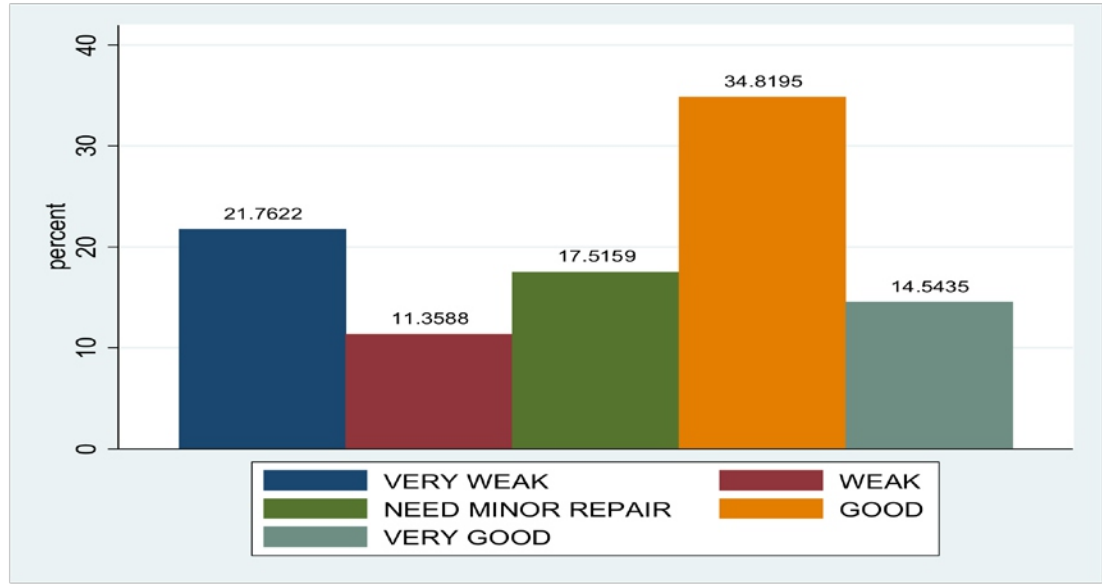

Figure 5: UISP wall condition

At the same time, about 17.5% of beneficiaries observed that the walls of their housing unit need minor repairs with 11.4% and 21.8% indicating either their wall is weak or very weak. In terms of the condition of roof, a significant number of beneficiaries, about 49% revealed that the roofing of their housing unit is good. In addition, about 18.6% of beneficiaries observed that the roofing of their housing unit is very good with about 17.3% indicating that their roof requires minor repairs.
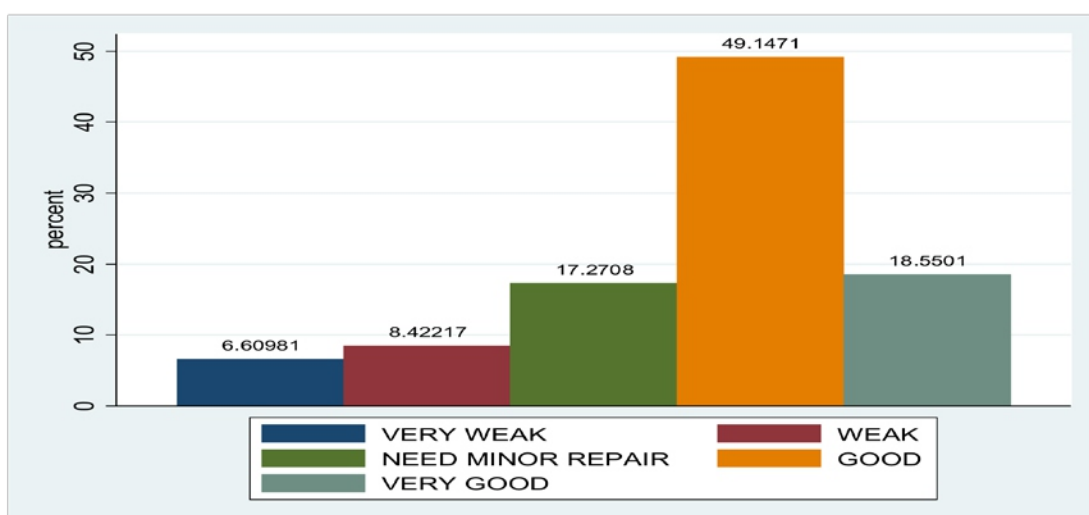
Figure 6: UISP roof condition

However, about 8.4% and 6.6% of beneficiaries observed that the roofing of their housing unit is either weak or very weak. Figure 7 shows the floor condition of the housing units under the UISP. The general condition of the housing floor is ranked from very good to very weak.
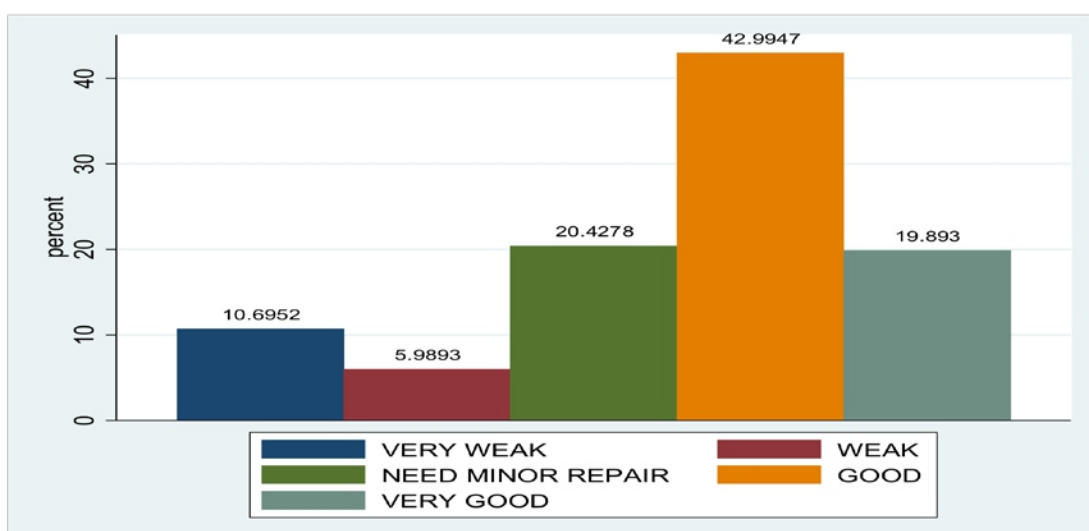

Figure 7: UISP floor condition

Most beneficiaries, about 43% revealed their floor is in good condition with about 19.8% indicating their wall is in very good condition. In addition, about 20.4% of beneficiaries observed that their wall needs minor repairs. However, about 6% and 10.7% of beneficiaries revealed that their floor is either weak or very weak. Figure 8 presents the dwelling type under the UISP.
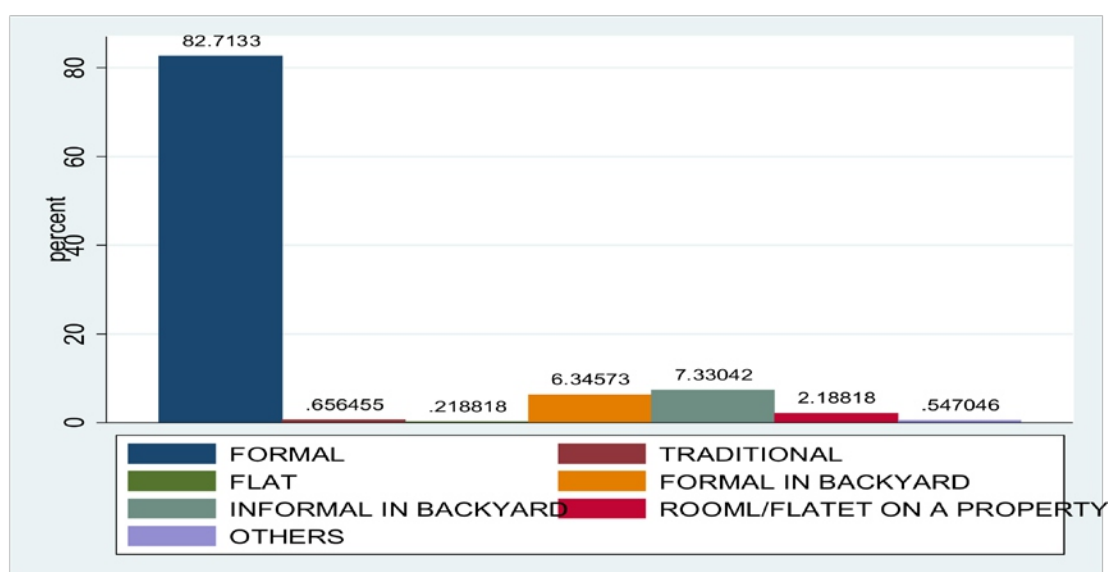
Figure 8: UISP dwelling type

Overall, a significant proportion of beneficiaries around 82.7% revealed they live in formal housing units. This comprised of house or brick/concentrate block structure on a separate stand or yard. At the same time, about 7.3% of beneficiaries also indicated they live in informal dwelling/shack in backyard, with 6.3% observing they live in formal dwelling/house/flat/room in backyard. Also, about 2.19% indicated they live in room/flatlet on a property or larger dwelling/servants quarters/granny flat/cottage.

This suggests that some of the intended beneficiaries, around 17% do not stay in the main house they obtained from the Department but have instead built additional structures such as flats or informal/formal backyard and that they stay in there instead. The only logical explanation is that they could be renting the main dwelling they obtained from the department to generate some income. Alternatively, family could be too big, and they have made way for some family members to occupy main dwelling instead. Figure 9 presents beneficiaries 'ratings of their experience in receiving title deed for their housing under UISP.
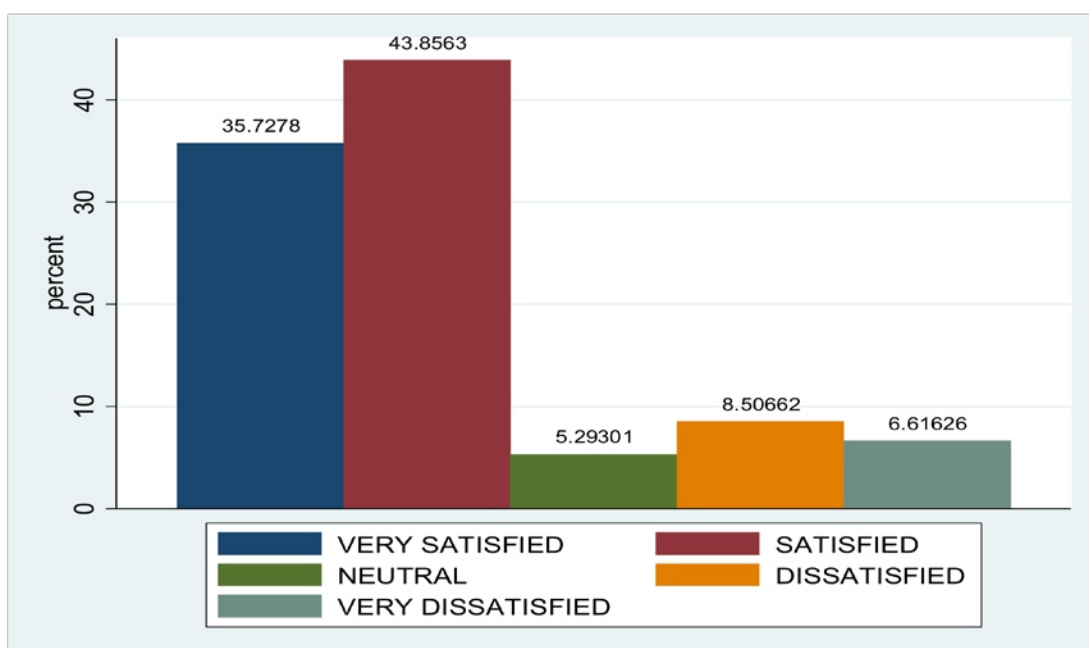
Figure 9: UISP rating of experience

In all, majority of UISP beneficiaries, about 43.9% observed they were satisfied with their experience in acquiring a title deed. In the same way, 35.7% of beneficiaries noted they were very satisfied with the process, with 5.3% remaining neutral. Also, about 8.5% and 6.6% indicated they are either dissatisfied or very dissatisfied with their experience.

In terms of whether beneficiaries are in possession of title deeds, Table 4 shows that 330 out of 859 respondents under the UISP indicated they have title deed representing 38.42%, with 437 representing 50.87% saying they do not have title deed.

Table 4: Title deed and programme awareness, UISP

Title Deed	Obs	Percentage
Yes	330	38.42
No	437	50.87
Unsure	92	10.71
Programme Awareness	748	84.33
Yes	101	11.39
N0	30	3.38
Unsure		
First Beneficiaries	826	93.02
Yes	2	0.23
No	60	6.76

At the same time, 92 respondents were unsure of whether they have title deed or not. It is concerning that majority of beneficiaries still do not have title deeds for their properties. In terms of satisfaction with overall quality of dwelling, Table 5 shows that a significant number of beneficiaries under the UISP were satisfied.

Table 5: Satisfaction with the implementation of UISP

Variable	Obs	Mean	Std. Dev.	Min	Max
Unit Size	285	1.414035	0.560256	1	3
Title Deed Experience	161	2.142857	1.417997	1	9
Implementation	279	1.856631	0.768689	1	5
Wellbeing Ratings	281	7.437722	2.172195	1	10
Neighbourhood	276	7.199275	2.200859	2	10
Improved Conditions	229	7.537118	2.425137	1	10
Prior Training	113	6.876106	3.1028	1	10

An average score of 2.14 also indicates beneficiaries are satisfied with their experience in securing a title deed under the UISP. Regarding verbal rating of the overall satisfaction with the implementation of the UISP, again, a significant number of respondents observed they were satisfied and at the same time rate the quality of housing unit within the UISP 7 out of a scale of 10. Also, regarding the quality of neighbourhood, beneficiaries rated it 7 out of 10. Most important, in rating whether there has been improvement in their living conditions since benefitting from the housing programme (from 1-very bad to 10-excellent), a significant number of beneficiaries rated approximately 8 out of 10 signifying that the acquisition of the housing unit has improved their living condition. More so, regarding overall training from department of human settlement prior to moving into the house, beneficiaries rated it approximately 7 out of 10.

Table 6: Experience with government UISP housing programme

Variable	Obs	Mean	Std	Min	Max
Perceived Value	587	229471.9	33593.8	0	1500000
Awareness Source	909	3.427943	2.49328	1	8
Beneficiary	896	1.934152	0.257002	1	3
Training	759	0.3083	0.462096	0	1