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The Impact of South Africa's Response to Informal Settlements and Affordable Housing Development when compared to the responses adopted in Brazil and India

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A research report submitted in partial fulfillment of the requirements for the degree of Master of Science in the field of Civil and Environmental Engineering

in the

School and Civil and Environmental Engineering,
University of the Witwatersrand, Johannesburg

27 May 2024

DECLARATION

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ABSTRACT

In South Africa, informal settlements are prevalent in all the major urban centers, including some long-established informal settlements, such as ones within Alexandria township in the City of Johannesburg, Nyanga in the City of Cape Town and Kennedy Road in the City of eThekwini. New informal settlements are continuing to develop across South Africa's urban centers. Various policies and interventions have been implemented to address this phenomena.

This study aimed to investigate the impact and effectiveness of South Africa's policies and interventions on informal settlements and compared them to policies and interventions of India Brazil. The study begins with a literature review of the policies and strategies of the three countries alongside best practices recommended by international organizations such as UN-Habitat and the World Bank. The effectiveness of the policies was assessed, and the general issues that affect informal settlements globally were identified.

Research questions were formulated based on the literature review to gain further insights into South Africa's response strategies. Semi-structured Interviews were conducted with three professionals working in organizations addressing informal settlements across different provinces, focusing on current strategies, their impact and effectiveness, and potential improvements. A field visit to Mahlakong informal settlement in Limpopo was also carried out which included interviews with two residents to understand challenges and interventions underway to address them.

The study found some progressive policies and strategies underway in South Africa, such as the strong emphasis on participation and approval by residents of informal settlements when interventions are carried out, and incremental construction of infrastructure in informal settlements. The study also identified areas that if addressed can improve South Africa's response to informal settlements, such as recognizing multi-storey inner city buildings as informal settlements, encouraging private developers to invest in affordable housing development, and diversifying tenure legalization option.

Contents

DECLARATION ii

1. CHAPTER 1: INTRODUCTION 1

1.1 Introduction 1
1.2 Research Problem Statement, Aims and Objectives 2
1.2.1 Research Problem Statement 2
1.2.2 Research Aims 2
1.2.3 Research Objectives 2
1.3 The relevance of this study in the Civil Engineering profession 3
1.3.1 Urban Engineering 3
1.3.2 Municipal Civil Engineering 4
1.4 Conclusion 4

2. CHAPTER 2: LITERATURE REVIEW 6

2.1 Introduction 6
2.2 International Policy 6
2.2.1 The World Bank policy positions 6
2.2.2 Policies for promoting development of affordable accessible housing. 10
2.3 South Africa 17
2.3.1 Legislation, Policy and Institutional Arrangements 17
2.3.2 Policy Interpretation and Implementation 23
2.3.3 Funding Strategies 32
2.4 Brazil 33
2.4.1 Legislation, Policy and Institutional Arrangements 33
2.4.2 Policy Interpretation and Implementation 36
2.4.3 Funding Strategies 38
2.5 India 38
2.5.1 Legislation, Policy and Institutional Arrangements 38
2.5.2 Policy Interpretation and implementation 43
2.5.3 Funding Strategies 47
2.6 Literature review conclusion 50
2.7 Literature Interpretation 50

3. CHAPTER 3: RESEARCH METHODOLOGY 56

3.1 Introduction 56
3.2 Research approach and strategy 56
3.2.1 Semi-structured Interviews with Professional Respondents 57
3.2.2 Informal Settlement field visit and semi-structured interviews with residents 58
3.3 Data Collection 59
3.3.1 Sampling 60
3.3.2 Data interpretation and analysis 62
3.4 Research Ethics 62
3.5 Research Limitations 63
3.6 Conclusion 64

4. CHAPTER 4: RESEARCH FINDINGS 65

4.1 Introduction 65
4.2 Findings from Semi-Structured Interviews with professionals in roles that address informal settlements in South Africa 65
4.2.1 Informal Settlement Upgrading 65
4.2.2 Recognition of different types of Informal Settlements 67
4.2.3 Informal settlements prioritization 69

4.2.4 Infrastructure and services provision 71
4.2.5 Tenure legalization 73
4.2.6 Community engagement 74
4.2.7 Administrative innovation and openness to the adoption of new strategies 77
4.2.8 Funding for informal settlement interventions 82
4.2.9 Informal settlement community organization 85
4.3 Findings from a field visit to Mahlakong Informal Settlement 86
4.3.1 Infrastructure and services provision 87
4.3.2 Tenure legalization 89
4.3.3 Community cooperation 91
4.3.4 Community ingenuity and innovation 92
4.4 Thematic comparison of the research findings 92
4.5 Conclusion 98

5. CHAPTER 5: ANALYSIS OF RESEARCH FINDINGS 99

5.1 Introduction 99
5.2 Positive interventions that are underway in South Africa's response to informal settlements 99
5.2.1 Preference for in-situ upgrading and incremental development 99
5.2.2 Incremental tenure arrangements 100
5.2.3 Provision of basic infrastructure and services 101
5.2.4 Community Engagement 102
5.3 Opportunities for improvement in South Africa's response to informal settlements 102
5.3.1 Expanding the definition of informal settlements 103
5.3.2 Expanding Tenure Legalization Options 105
5.3.3 Increasing private sector participation in affordable housing development 107
5.3.4 Diversified funding mechanisms for informal settlement interventions 108

6. CHAPTER 6: CONCLUSION 112

6.1 The aim and objectives of this research study 112
6.2 The methodology followed by this research study 113
6.3 The findings of the study 113

7. References 116

List of Figures

Figure 1: Graphical method of presenting human deprivation indices (World Bank, 2011). 8

Figure 2: An earthship house under construction by one of five participants in Venter , et al.' (2019) study. 24

Figure 3: Illustration of the housing modules developed for the Narvang upgrade project (El Menshawy, et al., 2016). 47

Figure 4: Phases of informal settlement upgrading projects as presented in the National Housing Code 69

Figure 5: Picture of communal ablution blocks pioneered by a metropolitan municipality within South Africa (Metropolis, 2014) 77

Figure 6: The commonly seen design of IRDP housing settlements in South Africa (polity, 2017). 79

Figure 7: Cornubia human settlements project with double storey IRDP housing units (SABC, 2019). 79

Figure 8: Area Map the Mahlakong informal settlement and the surrounding public and private facilities. 87

Figure 9: Communal standpipe for water supply in the Mahlakong informal settlement 88

Figure 10: Solar powered area lighting for crime prevention 88

Figure 11: Multiple self-constructed pit latrine toilets clustered together in a section of the Mahlakong Informal Settlement belonging to various households. 89

Figure 12: One of various solar panels observed in Mahlakong erected for electrification of one of the dwellings. 89

Figure 13: A dwelling in the Mahlakong Settlement with a stand number inscribed using blue spray paint. 90

Figure 14: The soccer field inside the Mahlakong Informal Settlement, with a football game underway. 92

List of Tables

Table 1: Funding mechanism and percentage contributions of stakeholders for implementation of RAY policy projects (MoHUA, 2013). 49

Table 2: Recurring themes in the responses towards informal settlements adopted in India, Brazil and South Africa and a description of how they are approached in each country. 51

Table 3: description of the work experience of the professional interview respondents selected for this study 57

Table 4: Thematic analysis of the responses received from the professional interview respondents, and the field visit to Mahlakong informal settlement. 93

Table 5: Comparison of shack slums and illegally occupied multi-storey buildings showing the parallels between these two settlement types. 103

Table 6: Example of development quotas that could be legislated to encourage private developers to construct affordable housing units. 109

1. CHAPTER 1: INTRODUCTION

1.1 Introduction

Informal Settlements, sometimes referred to as slums, are a globally occurring urban phenomenon that mostly affects developing countries. The United Nations (UN) broadly defines an informal settlement as a human settlement where residents lack tenure security, basic services and infrastructure and the settlements are often comprised of dwelling structures that do not conform to local building standards (UN-Habitat, 2015). Informal settlements occur due to various factors including inadequate supply of affordable or low-cost housing and they are defined differently in various countries as this research study will demonstrate. For the purposes of this study, the UN definition of an informal settlement is adopted but restricted to urban or peri-urban settlements. In 2015, the United Nations adopted 17 sustainable development goals and goal 11 aimed at addressing the scourge of informal settlements in order to enhance resilience, inclusivity and sustainability of all human settlements (UN, 2015).

In South Africa, informal settlements occur throughout all the major urban centers. Some informal settlements have long been in existence, such as informal settlements within Alexandria township in the City of Johannesburg, Nyanga in the City of Cape Town and Kennedy Road in the City of eThekwini. New informal settlements also continue to develop throughout South Africa's urban centers (Bradlow, et al., 2011). In accordance with the UN description, many of the informal settlements in South Africa are characterized by inadequate infrastructure, poor access to basic services, unsuitable environments, uncontrolled and unhealthy population densities, inadequate dwellings, and a lack of effective administration by the municipality (Housing Development Agency, 2020).

Various policies and interventions have been devised in South Africa towards addressing informal settlements. Some of South Africa's informal settlement policies include the Reconstruction and Development Program (RDP) which was launched in 1994 and whose main focus has been construction of new low-cost housing units (Bradlow, et al., 2011), and the Breaking New Ground (BNG) policy which was launched in 2004 and mainly focused towards upgrading of informal settlements (DHS, 2004). The South African government has also developed organizations such as the Upgrading of Informal Settlements Program (UISP) which was also launched in 2004 to support the BNG (2004) policy. The National Housing Department also launched the National Upgrading Support Program (NUSP) in 2008 to further promote implementation of the BNG Policy (NUSP, 2018).

Despite the policies and interventions, South Africa has not only seen a continued development of new informal settlements, but many of the long established informal settlements have remained unchanged (Huchzermeyer, et al., 2014). Furthermore, with the continued growth of previously existing informal settlements in geographical area and population, and the minimal maintenance of the existing infrastructure already provided, these interventions have not resulted in any long term upgrading of the informal settlements (Bradlow, et al., 2011).

1.2 Research Problem Statement, Aims and Objectives

1.2.1 Research Problem Statement

Many long-established informal settlements in South Africa continue to grow and remain informal despite various policies and interventions targeting their development. New informal settlements are also developing. The current interventions being implemented towards addressing informal settlements are not generating noticeable long term changes in the informal settlements landscape of South Africa.

1.2.2 Research Aims

The aim of this research study is to investigate the impact and effectiveness of South Africa's adopted policies and interventions towards addressing informal settlements when they are compared to the policies and interventions adopted in India and in Brazil.

To achieve this, the study will start by investigating policies and strategies to address informal settlements that are applied in other parts of the world, particularly in India and Brazil. The strategies that have been adopted in these countries that are not currently being practiced in South Africa will also be identified. The research study will also identify funding channels governments have employed to fund informal settlement and affordable housing interventions. These policies and funding mechanisms will then be proposed to address the informal settlements of South Africa following an assessment of their benefits and weaknesses and their suitability in a South African context.

1.2.3 Research Objectives

This research study will compare South African policies and approaches towards addressing informal settlements and developing affordable housing with those adopted in Brazil (South America) and India (Asia). The objectives of this study will be the following:

- To determine and outline the general issues affecting informal settlements globally and more specifically in South Africa.

- To identify and investigate the strategies currently being implemented to address informal settlements and develop affordable housing globally and in South Africa.
- To identify and describe alternative policies and strategies that are used in other countries that have not been adopted in South Africa.
- To determine the shortcomings in policies and interventions used in South Africa for addressing the development of informal settlements and affordable housing through comparison with the policies and interventions from other countries.
- To determine whether policy makers and agencies addressing informal settlements in South Africa are aware of the alternative strategies, their positions on the alternative strategies, and if these strategies may be considered for implementing in South Africa.
- To recommend policies and strategies from other countries that may enhance the impact and effectiveness of South Africa's response to informal settlements and affordable housing development if adopted in South Africa.

1.3 The relevance of this study in the Civil Engineering profession

The civil engineering field is multi-disciplinary in nature, more in particular in developing countries where the infrastructure constructed by civil engineers play a vital role in fostering development. Graduate civil engineers may find themselves fulfilling various roles across different organizations, and some of these roles may require them to develop and manage projects addressing informal settlements or constructing affordable human settlements. The roles and disciplines in which civil engineers may address informal settlements are described below.

1.3.1 Urban Engineering

One of the disciplines within the civil engineering profession is urban engineering or urban management, which concerns itself with urban infrastructure networks and systems such as roads, water and sanitation (UCT, 2024). Urban engineering also concerns itself with the social, economic and political context in which urban infrastructure is developed (UCT, 2024). As a result, urban engineers are required to consider urban challenges and develop integrated engineering solutions which take into consideration infrastructure, services, economic and socio-political factors.

Informal settlements are a major challenge in urban engineering (Georgiadou, et al., 2024). This research study is therefore centered towards addressing a major global challenge in urban

engineering. It is evident that informal settlements are a major challenge globally as the need to develop more inclusive and sustainable cities, and reduce the number of people living in informal settlements is identified one of the UN Sustainable Development Goals (UN, 2015). In South Africa, informal settlements are prevalent across many urban centers (Mail & Guardian, 2023) and addressing them will require integrated urban engineering approaches which take into consideration citywide infrastructure networks, availability of and access to services, livelihoods of households, and the social networks on which residents of the informal settlements come to depend.

1.3.2 Municipal Civil Engineering

Many civil engineers in South Africa, as evidenced by the professional interview respondents consulted for this research study, fulfil roles in government institutions such as municipalities, provincial departments, and state owned entities that concern themselves with human settlements. In government institutions, civil engineers do not carry out technical designs, such as designing a road or a building, but they develop infrastructure projects. Civil engineers in government institutions also fulfill the role of technical experts who shape policies on infrastructure (e.g. municipal building regulations).

Some of the infrastructure projects municipal civil engineers develop address informal settlements. Effective project development requires various aspects to be taken into account, such as the social setting in which the project will be implemented (stakeholders), the economic project requirements (project capital and operational requirements, funding sources, etc.), the technical aspects of the projects (road, water and infrastructure networks design, buildings, etc.) and the regulatory restrictions to which the project must adhere (minimum housing size, building materials etc.).

This research study is important for municipal civil engineers fulfilling roles in development of projects addressing informal settlements because it investigates ways in which they can improve the impact and effectiveness of their projects. The study adopts a wholistic approach, considering all the aspects affecting informal settlements in order to propose effective strategies that can be adopted by municipal civil engineers when they develop projects and when they advise on policies that will increase the effectiveness of their interventions.

1.4 Conclusion

This chapter has outlined the problem statement, the aim, and the objectives of this research study. The chapter has also described why this study is relevant in the Civil Engineering

profession. This research report is presented in six chapters. Chapter 2 will present a literature review on the current status quo with informal settlements around the world and in particular, in South Africa, India, and Brazil. Chapter 2 will also present policies, strategies, and funding methods employed for addressing informal settlement and affordable housing interventions used in each country. A short discussion of the findings from the literature review is presented at the end of Chapter 2 and this comparative discussion is used to develop major recurring themes in the issues affecting informal settlements globally.

Chapter 3 describes the methodology used to achieve the objectives of this research study. Chapter 4 presents the findings from semi-structured interviews with professionals in organizations that work with informal settlements in South Africa. Chapter 4 also presents findings from a field visit to an informal settlement within South Africa and findings from semi-structured interviews with residents of the settlement. Chapter 5 presents an analysis of the findings from the literature review and the semi-structured interviews and the field visit. Recommendations of policies that may be adopted in South Africa to enhance the response to informal settlements and affordable housing development are also presented in Chapter 5. The final chapter, Chapter 6 presents a conclusion of the study and re-iterates the objectives and findings.

2. CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter presents literature on informal settlements and affordable housing development. The chapter begins by presenting literature developed by international organizations such as UN-Habitat, the World Bank, as well as other institutions promoting leading practices in informal settlement interventions and affordable housing development. The chapter also describes policies and legislation adopted in South Africa, India, and Brazil. The funding strategies for interventions towards addressing informal settlements and developing affordable housing are identified through literature and presented as well. For some analyses of the policies adopted in these countries, literature in the form of academic papers, reports, and books presenting case studies on the interventions is utilized and presented in the chapter.

This approach of presenting the literature has been adopted because it allows this research study to examine the policies promoted by global organizations, as well as the adopted policies in the selected countries, and to then present case studies and insights in the policies. The case studies and critiques or insights produced by other researchers are used to determine the effectiveness of the policies. The broad geographical nature of the literature will assist with the identification of recurring themes of issues affecting informal settlements globally, which will then be investigated further in a South African context as the study progresses.

2.2 International Policy

2.2.1 The World Bank policy positions

2.2.1.1 In-situ Upgrading of Informal Settlements

In the 1970s, William Turner promoted a view that governments should create an enabling environment for individual households to develop their own housing by providing essential infrastructure. Turner (1976) cited research in Brazil that found that informal settlement dwellers were gradually improving their self-built “shacks” as validation for this view. He also advocated against removal of slum settlements due to the disruptions to economic and social networks and argued that the damage caused by relocation can be greater than the damage resulting from allowing people to remain in their materially poor communities (Turner, 1976).

Turner’s views were in agreement with the World Bank’s policy shift in 1950. The World Bank advocated for in-situ upgrading of “slums” and incremental housing (World Bank, 2011). Incremental housing describes a slow process of building a housing unit, where households

improve the quality and space in their houses over more extended periods of time. In 2011, the World Bank recommended that the upgrading of informal settlements worldwide be scaled up and implemented much more programmatically (World Bank, 2011).

A policy shift towards upgrading informal settlements indicates an acknowledgment of the legitimacy of the settlement by authorities and that the residents have a right to settle on the land (World Bank, 2011). As informal settlements often develop on illegally occupied land, tenure legalization and the provision of infrastructure and services become a necessity to enable an environment where residents can begin to incrementally improve their dwellings.

The World Bank (2011) promotes gathering and using data to understand the needs of informal settlements, to prioritize interventions, and to prioritize the settlements. To understand the needs of informal settlements, the World Bank (2011) identified "indicators of human deprivation," and the indicators include per capita household income/expenditure, the poverty gap, and health and education indicators. These indicators, when represented and analyzed numerically, could be used to develop indices for understanding community needs and the extent to which different communities are in need (World Bank, 2011). The World Bank (2011) proposed a graphic method of representing the indices. The graphic depiction can quickly identify the most common needs of communities and, when looking at many communities, identify the least prevalent and most prevalent issues affecting the communities. An example of the proposed graphical method for presenting data on informal settlements is shown in Figure 1 below.

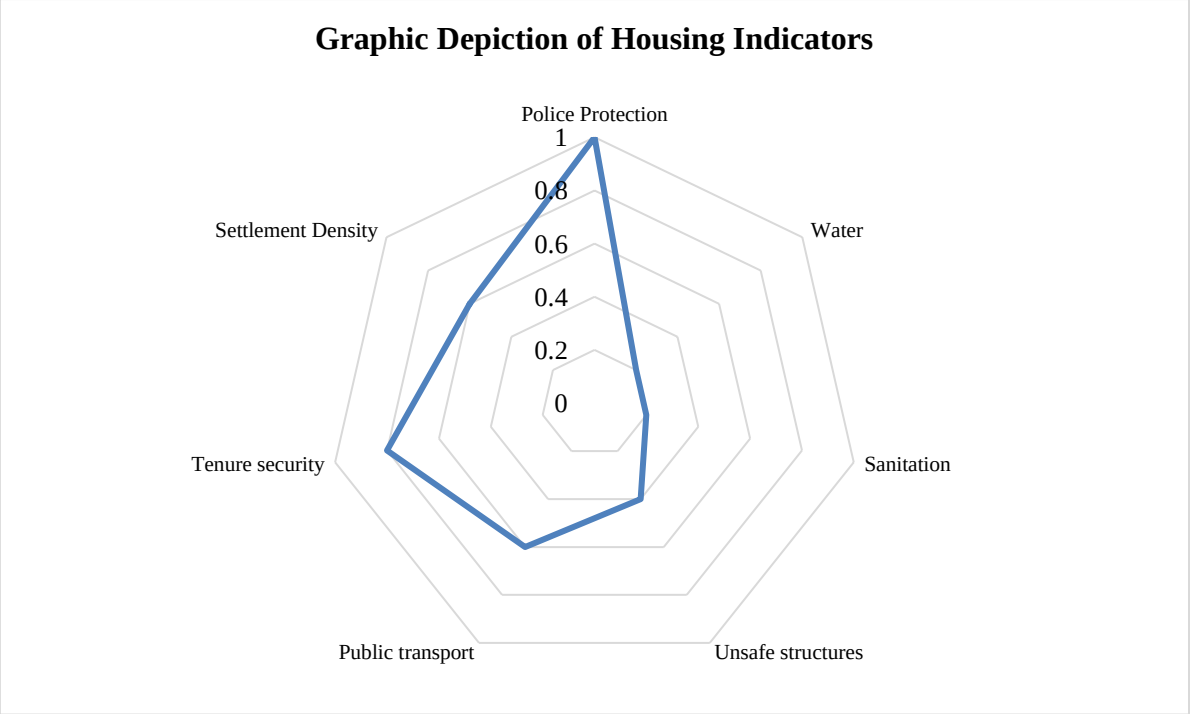


Figure 1: Graphical method of presenting human deprivation indices (World Bank, 2011).

In the example presented in Figure 1, a score of zero (0) represents no deprivation, hence a functional and fully provided service. In contrast, one (1) represents complete deprivation, hence no provision of the particular service. The numbers between zero and one (0-1) represent the extent to which a service is in deprivation and, inversely, the extent to which the service has been provided to the community. The community presented in Figure 1, therefore, has full provision of water and sanitation as the graph presents zero (0) deprivation, however there is no police protection (1) for community residents. The community also has a high (0.8) deprivation of tenure security. Since this is higher than public transport (0.6), the priority of interventions in this community should be providing police protection and tenure legalization.

Not only does this graphical method enable quick identification of the highest priority interventions required in a particular informal settlement, but a city with many informal settlements can use this graphical method to identify its most deprived informal settlements. Informal Settlements can be prioritized by identifying those with the highest score of human deprivation indicators, and interventions can be directed toward these settlements.

To source the data for understanding informal settlements and their conditions, the World Bank (2011) suggested primary and secondary data gathering methods. Primary data is directly collected, such as household surveys, which the World Bank (2011) acknowledges can be costly. Appropriate sampling in communities is recommended to counter the high cost of gathering primary data (World Bank, 2011). Secondary data is described as existing data

sources such as national censuses, household surveys that measure living standards, employment surveys, as well as data collected by NGOs and community groups (World Bank, 2011).

The World Bank (2011) also identified additional strategies for addressing informal settlements.

2.2.1.2 Land Sharing in informal settlements

According to the World Bank (2011), Land sharing is used in Thailand and India, and it creates space for commercial developments in slum areas without removing slum dwellers through denser housing. During the land sharing process, some slum residents are moved and rehoused in a section of the settlement. At the end of the process, the slum residents are given tenure security in serviced plots or houses (World Bank, 2011).

For successful land sharing, a thriving property market is required, well established communities are required, and an external organization that is not a stakeholder in the project, such as an NGO is required to act as an intermediary between the community and the commercial developer (World Bank, 2011). The land covered by the settlement must also be large enough to accommodate both residents and the envisaged commercial use. The most significant advantage of land sharing for governments is that the commercial developer may pay all or a large portion of the settlement upgrading fees (World Bank, 2011).

In a South African context, with land ownership being highly politicized due to land dispossession during apartheid, public acceptance of land sharing may be challenging. This strategy may also be difficult to implement in informal settlements on the urban peripheries as it requires partnership with commercial developments who likely prefer more commercially attractive locations to maximize profitability.

The World Bank (2011) identified data requirements for supporting land sharing as a land ownership study, project proposals that are well defined and clearly understood by all stakeholders, land planning, tenure security, a well-defined stakeholder list, and an analysis of historical settlement data to prevent or plan for likely growth scenarios (World Bank, 2011).

2.2.1.3 Land pooling in informal settlements

Another strategy identified by the Wand Bank (2011) is land pooling and this strategy provides services to un-serviced or underserviced areas on urban outskirts by consolidating housing into a layout that makes the construction of roads, service lines, and open spaces easier (World Bank, 2011). The sale of some of the housing plots in the newly serviced area may also be used

to generate income and recover project costs. While residents may have smaller plots after land pooling and guided development, they benefit from increased land value due to the newly built services (World Bank, 2011).

This strategy is widely used in Japan, South Korea, and Taiwan, and the benefit it creates for local governments is efficient and structured urbanization at minimized costs due to the income generated through land sales (World Bank, 2011). Elements of this strategy were noted in a South African strategy referred to as "rollover upgrading" or "re-blocking" by Huchzermeyer, et al. (2014), where a settlement layout is redeveloped to make room for amenities and services. There was, however, no sale of land for recovery of some of the project costs found in South Africa.

The required data for supporting land pooling and guided development is identified by the World Bank (2011) as detailed records of land ownership, services, and amenities in and near the project site and clearly identified risks associated with the project location and the project itself for households in the settlement.

2.2.1.4 Relocation of informal settlements

Relocation of informal settlements occurs when residents of the informal settlement are removed from the settlement location and rehoused in different areas. Relocation is only encouraged by the World Bank (2011) if the settlement is in a hazardous environment, e.g., polluted soil or waste dumps. Residents often resist location, and it sometimes results in social and economic disruptions to their livelihoods.

2.2.1.5 Proactive development of affordable housing.

The last of the strategies for addressing informal settlements identified by the World Bank (2011) is the proactive development of affordable housing. While the paper published by the World Bank (2011) does not elaborate on how the strategy can be implemented, a study by Todd Litman (2022) proposed strategies that cities can employ to increase their available affordable housing stock. (Litman, 2022). Litman (2022) focused on three integrated concepts: housing affordability, accessibility, and dynamic and responsible planning.

2.2.2 Policies for promoting development of affordable accessible housing.

Litman (2022) stated that a low-cost house is not affordable if its location results in higher transportation costs for access to work and services. Households, therefore, make housing decisions keeping in mind housing costs and transportation costs. As a result of this, Litman (2022) defined an *affordable* house as one in which households spend a maximum of 45% of

their income on transport and housing. While Litman (2022) selected "45%" as the benchmark for determining whether or not a house is affordable, the percentage can be adjusted by authorities to account for jurisdictional circumstances.

Litman (2022) described *accessibility* as the ease of access to opportunities, services, activities, and destinations. Factors that affect accessibility include mobility, transportation options, network connectivity, costs, and land use. From these factors, Litman (2022) further described compact, multimodal communities where access to services and activities is easily achieved with minimal motor vehicle travel. These are neighborhoods where it is easy to get around through multiple means e.g., walking, cycling, and public transportation, etc.

Litman (2022) identified strategies for increasing affordable housing stock within a city and classified them into three categories:

- ineffective and sometimes harmful strategies,
- effective but often expensive strategies, and
- the most economical and effective strategies for increasing the inventory of affordable housing available in a city.

2.2.2.1 Ineffective and sometimes harmful strategies for increasing available affordable housing stock

The section below describes strategies for increasing the available affordable and accessible housing stock that Litman (2022) found to be ineffective and sometimes harmful.

2.2.2.1.1 Urban blight

Urban blight occurs when older housing units or buildings in undesirable communities are used for low-cost housing (Litman, 2022). While the housing may require low capital costs, it is often not designed with energy efficiency and may be costly to live in due to high utility and maintenance costs. In some neighborhoods, urban blight can cause increased social challenges such as crime and poverty. (Litman, 2022). Litman (2022) encouraged the construction of newer developments as they may have higher densities and lower operating and maintenance costs for households.

2.2.2.1.2 Urban fringe housing

Urban fringe housing is the construction of affordable housing units in the urban periphery, and it is often done due to land availability and affordability. According to Litman (2022), while housing developments in the urban periphery may be affordable to construct, these

developments often result in challenges associated with urban sprawl. Urban fringe housing can result in increased transportation costs for households, which reduces the affordability of the house. Urban fringe housing can also increase fees for providing infrastructure and services for authorities (Litman, 2022). This strategy was prevalent in South Africa during apartheid, and the challenges of increased transportation costs and limited access to economic opportunities for fringe communities have been highlighted by researchers such as Huchzermeyer, et al. (2014).

2.2.2.1.3 Rent control / stabilization

Rent control occurs when authorities impose restrictions on the rental increases that landlords can charge their tenants. According to Litman (2022), rent controls can result in a reduced quality of housing due to lowered profitability for landlords. Rent controls can also reduce investment in the development of affordable housing, which can result in a reduction in the available affordable housing stock. Litman (2022) cited the example of Saint Paul (USA), in which rent controls resulted in an 80% reduction in building permits due to reduced interest by developers.

2.2.2.2 Effective yet often costly strategies for increasing available housing stock

The section below describes strategies for increasing the available affordable and accessible housing stock that Litman (2022) found effective but often costly to implement.

2.2.2.2.1 Favorable financing

Favorable financing occurs when financial barriers to accessing housing are lowered, such as reducing interest and fee rates on housing loans. According to Litman (2022), lowering the mortgage fees and interest on housing loans often only enables middle-income to high-income households to purchase more expensive homes and hardly benefits low-income households. The increased interest in housing can also result in increased demand, which in turn causes increased pricing of housing units (Litman, 2022).

2.2.2.2.2 Social housing

Social housing describes subsidized housing that is constructed for low-income households. Social housing can provide affordable homes in the inner city or nearby economic opportunities for low-income families. Litman (2022) found that social housing can localize poverty to parts of a city and, in some instances, discourage households from relocating to areas with improved economic opportunities. Social housing is also often less likely to meet the demand for affordable housing within a city (Litman, 2022). Social housing is under implementation in

South Africa, managed nationally by the Social Housing Regulation Authority (SHRA) (SHRA, 2021).

2.2.2.2.3 Inclusionary housing development

Inclusionary housing occurs when cities legislate developers to sell or rent units within new developments, usually between 5% to 20%, for a price below the market rate or pay contributions towards an affordable housing fund (Litman, 2022). Litman (2022) found that this strategy can increase the amount of available housing available in growing communities and cities. However, only a small population can be serviced through this strategy. This strategy can also bear the opposite result as it increases the housing fees for households not receiving affordable units through their subsidy for the low-cost units (Litman, 2022). In the long term, this may also result in overall increases in property prices within a city and increase property unaffordability (Litman, 2022). In 2019, the City of Johannesburg in South Africa adopted an inclusionary housing policy (COJ, 2020) whose effectiveness has yet to be determined due to its recent adoption.

2.2.2.2.4 Targeted Subsidies

Targeted subsidies occur when certain groups, e.g., differently-abled people or state employees, such as teachers and nurses, receive subsidies for their rental or mortgages (Litman, 2022). According to Litman (2022), this often results in increased rental prices and dislocating other low-income groups from accessing affordable housing. Litman (2022) cited research from the USA, which found that low-income households residing in areas with prevalent subsidized housing experienced quicker and steeper increases in rental prices than the neighborhoods with fewer subsidized low-income housing. This strategy only boosts housing affordability when implemented alongside other policies for increasing the affordable housing available within a community (Litman, 2022).

2.2.2.2.5 Subsidized urban periphery housing

For affordable housing located on the urban periphery, where land prices are lower but transportation fees are higher, some authorities provide subsidies for automobile ownership or subsidized and expanded public transportation (Litman, 2022). Litman (2022), however, found that this often exacerbates other urban challenges, such as increased road construction and maintenance fees, increased parking costs, increased traffic congestion, increased motor vehicle accidents, and increased pollution from vehicle emissions.

2.2.2.2.6 Increasing minimum wage

Litman (2022) found that increasing the minimum wage results in an increase in housing prices within a community or a city, and this causes a reduction in the affordability of housing within that community.

2.2.2.2.7 Volunteer Construction

Volunteer construction is often used in developing countries and can be advantageous for housing construction through traditional methods (Litman, 2022). According to Litman (2022), this method is often unsuitable for modern urban buildings as inexperienced builders may construct inferior housing units with many defects, which can reduce the durability of housing and reduce the resale prices of the units.

2.2.2.3 Most affordable and beneficial strategies for increasing available housing stock

The section below describes strategies for increasing the affordable housing stock within a community that Litman (2022) described as the most affordable and effective.

2.2.2.3.1 Increase permissible densities and heights

According to Litman (2022), most authorities place limitations on land parcel sizes, development densities, building heights, Building Coverage Ratios (BCRs), and Floor Area Ratios (FARs), and they may also stipulate parking minimums. The relaxation of these policies may result in increased infill development and diversify the types of housing available in neighborhoods (Litman, 2022). Urban zoning standards that limit building heights and sizes can also restrict the development of smaller housing units, which limits the available affordable housing stock.

2.2.2.3.2 Reduce barriers for affordable accessible housing development

Litman (2022) encouraged authorities to identify and reduce policies and practices that add costs, delays, and uncertainty to the development of affordable and compact housing development that are appropriate for infill housing development.

2.2.2.3.3 Minimize development and utility fees for affordable in-fill housing

Development fees usually add between 6%-18% of housing costs and for smaller affordable housing projects and this cost can represent a sizeable share of the overall project fees (Litman, 2022). Providing public infrastructure and services is costly in sprawled cities, so Litman (2022) recommended that development fees be minimized for affordable in-fill housing by providing discounts and exemptions and charging fees per square area instead of per unit. These

interventions can reduce the development fees and encourage the development of small affordable in-fill housing units.

2.2.2.3.4 Reducing development regulations

Litman (2022) found that development regulations reduce investment in housing, which results in increasing housing costs, in particular for low-income housing. The elimination or reduction of regulations would assist with accelerating permitting and approvals for low-income housing and it was promoted by Litman (2022) to encourage the construction of affordable housing.

2.2.2.3.5 Accelerate permitting and approvals for low-income housing

Accelerating the development approvals and permits for affordable houses reduces costs and uncertainty and makes these projects more appealing to developers (Litman, 2022).

2.2.2.3.6 Density bonus

Providing density bonuses entails permitting higher building densities and heights in exchange for the construction of affordable housing units (Litman, 2022). According to Litman (2022), this increases profitability of affordable housing developments and makes them attractive to developers.

2.2.2.3.7 Provide free or inexpensive land for affordable housing development

Governments may own numerous land parcels, including out-of-date public facilities and abandoned land that can be purchased through payment of unpaid rates and taxes (Litman, 2022). Such land parcels can be sold at discounted prices or issued to developers for the construction of affordable housing.

2.2.2.3.8 Brownfield remediation

Brownfields describes land areas whose development potential is reduced by assumed or real environmental contamination (Litman, 2022). Litman (2022) encouraged cleaning up these sites. In addition, enforcing land management legislation on past owners can result in these sites being suitable for housing construction (Litman, 2022).

2.2.2.3.9 Targets for development of affordable housing

As many urban communities tend to oppose the development of affordable housing, developing targets for the construction of affordable housing within regions and city areas can assist in implementing this development (Litman, 2022).

2.2.2.3.10 Dynamic Zoning

Dynamic Zoning occurs when zoning codes are continuously adjusted to suit changing urban conditions and achieve strategic objectives (Litman, 2022). This can include policies such as

raising allowable densities within communities, building heights, and FARs to encourage the development of affordable housing in strategic communities.

2.2.2.3.11 Address community concerns

Most of the challenges that lead to urban communities opposing affordable infill development can be addressed through effective communication and the development of appropriate policies (Litman, 2022). Appropriate responses to community concerns can include improving and enforcing noise regulations in neighborhoods expressing fear of noise pollution and educating neighborhoods about low-income families where there is a fear of social issues (Litman, 2022).

2.2.2.3.12 Improve building design and energy efficiency

Many neighborhoods resist the development of affordable housing due to poor building design (Litman, 2022). Building design may be improved through design competitions, workshops, and community participation to improve designs. Developers should also be encouraged to utilize lifecycle costing when making trade-offs between construction and operating costs to promote the construction of resource and energy-efficient designs (Litman, 2022).

2.2.2.3.13 Targeted policy for housing market distortions

Policy could be developed towards curbing practices that result in increased property prices, such as applying additional taxes on unoccupied houses and on short-term rentals (Litman, 2022). These practices result in increased utilization of housing units and encourage medium to long-term settlement in neighborhoods.

2.2.2.3.14 Improve affordable transportation

Affordable transportation can be improved by encouraging options such as cycling, walking, carpooling, and using public transportation (Litman, 2022). Litman (2022) emphasized the importance of having affordable transportation in low-income neighborhoods and encouraged the development of mixed-use or multi-modal communities.

2.2.2.3.15 Implementing smart growth reforms

Implementing policies that encourage the development of mixed-use neighborhoods is encouraged by Litman & Institute (2022). Examples of such policy includes encouraging urban redevelopment, implementing location-based fees, and coordination between government departments (Litman, 2022).

2.2.2.4 Conclusion

Litman (2022) noted that the effects of these policies can differ depending on locality. A targeted and strategic approach by policymakers is encouraged by Litman (2022), which

considers local factors and challenges when selecting the options to implement. Some of the policies promoted by Litman (2022) are being implemented in South Africa towards developing affordable housing and reducing the population living in informal settlements. The next section of this chapter will investigate the legislation and policies in South Africa towards addressing informal settlements and affordable housing development, and how the policy has been interpreted and implemented by various authorities within the country. The strategies adopted in South Africa for developing funding for informal settlement interventions will also be described.

2.3 South Africa

2.3.1 Legislation, Policy and Institutional Arrangements

The Constitution of the Republic of South Africa (the Constitution) of 1996 and the National Housing Act (the NHA) of 1997 significantly affect the South African government's approach to informal settlements. These legislative acts were developed before the first South African policy document specifically addressing informal settlements, the Breaking New Ground (the BNG) policy of 2004 (DHS, 2004).

All these legislative acts govern the adopted approach toward informal settlements, with the BNG being the most far-reaching legislation as it was specifically developed to address informal settlements. The section below summarizes the informal settlement and affordable housing development prescriptions described in each legislative document.

2.3.1.1 The Constitution of the Republic of South Africa

The Constitution is the apex law in South Africa. All legislation developed in the country must adhere to the Constitution and may only be developed towards its enhancement. In Section 26, the Constitution states that:

"*1. Everyone has the right to have access to adequate housing*" and that

"*2. The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realization of this right.*"

The Constitution further protects citizens from unlawful evictions by stating that:

"*3. No one may be evicted from their home, or have their home demolished, without an order of court made after considering all the relevant circumstances. No legislation may permit arbitrary evictions.* (The DoJ & CJ, 1996)*"*

From this legislative mandate, the government of South Africa has developed various legislation and policies towards “adequate” housing for all citizens. The NHA was established to give effect to the rights outlined in the Constitution.

2.3.1.2 The South African National Housing Act (NHA) of 1997

The NHA does not explicitly address informal settlements. However, it establishes the mechanisms to be used by various government spheres towards enacting the Constitutional right of South Africans to have access to adequate housing. The legislation mandates the government to prioritize the needs of the poor when it comes to housing development and ensure meaningful participation by all parties affected during the process of implementing housing development (DHS, 1997). The provision of various housing types and tenure options is also encouraged by the NHA.

In the first part, the NHA mandates the government to prevent the development of slums and slum conditions. This mandate which eventually led to the development of the BNG policy in 2004, which was enacted by the South African government to address informal settlements.

2.3.1.3 The Breaking New Ground (BNG) Policy of 2004

The BNG policy was adopted by South Africa’s National Assembly in 2004, and it was not developed to replace the NHA, but to enhance it in addressing informal settlements or slums (DHS, 2004). The BNG aims to “eradicate informal settlements” (DHS, 2004). The policy identifies the challenges to the development of adequate housing as slow economic growth, poor job creation, population growth, urbanization, and apartheid South Africa’s spatial planning (DHS, 2004). The main aim of apartheid South Africa’s spatial planning policy was to separate the different races and prevent social integration. During this process, low-income housing developments were positioned on the outskirts of cities, far away from economic opportunities. While racial segregation has been abolished in South Africa, spatial planning has remained with low-income human settlements predominantly being located in the urban peripheries, and this has resulted in low-income households’ access to economic opportunities being restricted.

It is noted in the BNG policy that while affordable or low-income housing has been delivered, the delivery has not been able to keep up with the increasing demand, resulting in the increasing development of informal settlements. The BNG policy also highlights the challenges encountered by the state in the delivery of affordable housing. Firstly, the policy notes that the low availability of well-located land for the development of affordable housing had resulted in

the state developing settlements in the urban periphery, which does not encourage social integration and proliferates poverty and other social challenges to beneficiary communities (DHS, 2004). The BNG also highlights that most beneficiary households cannot afford the maintenance and municipal fees of the housing units they are allocated, and this results in municipalities viewing the investment as a liability, hence being discouraged from investing in such interventions (DHS, 2004).

The BNG further describes strategies that should adopted to develop and provide adequate affordable housing and hence achieve its goal of "eradicating" informal settlements.

2.3.1.3.1 Supporting the broader residential property market

The first strategy towards addressing informal settlements described in the BNG is to support the residential property market by broadening government's scope in providing adequate housing. New housing support mechanisms were planned for development for groups that were previously excluded from accessing government support, such as middle-income families (DHS, 2004). A shift away from the previously favored development of single-family housing units on single plots is also proposed towards various types of housing developments that will be flexible and favorable in different kinds of neighborhoods (DHS, 2004).

The BNG also advocates for enhancing the role of the private sector and private institutions in the construction of housing units and the provision of funding for affordable housing (DHS, 2004). Some of the strategies identified for increasing housing affordability include limiting or reducing deposits for housing loans provided to low and middle-income families through partnering with the government, sharing risk and fixing interest rates, and unlocking additional funding through Public-Private Partnerships (PPPs) for the development of social housing (DHS, 2004).

Another strategy for supporting the broader residential property market identified in the BNG is developing a mechanism to subsidize secondary housing purchases by individual households (DHS, 2004). The BNG notes that the available subsidies only made allowance for the purchase of new housing units due to them being linked to developments. A move towards providing subsidies to individual households would encourage the sale of older properties and improve the property market (DHS, 2004).

Promoting access to title deeds to increase household assets is also identified as a strategy to support the property market and alleviate poverty in the BNG. The policy states that tenure security is achieved for many households "in principle", however the process of providing titles

can sometimes take longer. The policy encourages the government to implement programs that fast-track homeowner registrations and provide title deeds for low to middle income households (DHS, 2004).

2.3.1.3.2 Development of Sustainable Human Settlements

The BNG describes sustainable human settlements as:

"well-managed entities in which economic growth and social development are in balance with the carrying capacity of the natural systems on which they depend for their existence and result in sustainable development, wealth creation, poverty alleviation and equity"

The BNG identifies sustainable human settlements development as a strategic sector for poverty alleviation, and the housing itself is identified as a means of alleviating asset poverty. When implemented with other strategic options such as compact urban development, mixed land use developments, and increasing urban densities, housing can contribute towards social integration and grant low-income households access to economic opportunities (DHS, 2004).

The BNG describes various strategies for the development of sustainable human settlements, and the strategies are summarized in the subsections below:

2.3.1.3.2.1 Incremental eradication of informal settlements

The BNG states that there is an urgent need to integrate informal settlements into the broader urban fabric of the cities in which they are located to reduce spatial, economic and social exclusion. The policy advocates for a change in response to informal settlements from neglect and conflict to cooperation and integration of these settlements into their broader communities through in-situ upgrading (DHS, 2004).

In-situ upgrading of informal settlements through a phased or incremental approach is promoted by the BNG, with the ultimate aim being to "eradicate" informal settlements. The policy also promotes the adoption of various land title models and the development of various types of housing units. A new funding mechanism for supporting in-situ upgrading is mandated in the BNG, and this instrument is expected to be adaptable to various circumstances of different informal settlements.

Three phases of upgrading informal settlements are established in the BNG policy:

- Phase 1: Surveying and consultation with communities to determine geographical suitability and housing and infrastructure requirements of the community.
- Phase 2: Ensuring tenure security and providing basic services and social facilities.

- Phase 3: Infrastructure and housing construction that allows for the development of medium-density or single-unit housing options constructed through community initiatives or local contractors.

2.3.1.3.2.2 Promoting densification and urban integration

The BNG encourages the promotion of densification in urban communities to integrate previously excluded groups. Integration is established as a means to alleviate poverty and promote the development of functional and sustainable human settlements (DHS, 2004).

One of the strategies in the BNG for promoting densification and urban integration is the enactment of legislation that requires private developers to reserve up to 20% of housing units in developments for low-income households or to construct low-income housing units in neighboring areas. The percentage of low-income housing units to be constructed in each development would be prescribed through the development permits (DHS, 2004).

The policy also encourages the Department of Human Settlements to work collaboratively with the National Treasury and the South African Revenue Service (SARS) to develop financial incentives for private developers to favor densification projects and to implement disincentives for interventions that result in urban sprawl (DHS, 2004).

2.3.1.3.2.3 Improved spatial planning

Improved spatial planning is critical for ensuring the development of sustainable human settlements, this especially with the BNG noting that housing development projects undertaken by the government in the past have been criticized for reinforcing apartheid spatial planning. The BNG acknowledges that coordination between various state institutions will be necessary for integrated planning, and other state institutions may be required to avail suitably owned land to develop affordable housing. Private land acquisitions will also be considered for suitable land (DHS, 2004).

2.3.1.3.2.4 Promoting urban renewal and inner city regeneration

Urban renewal occurs when governments undertake strategic interventions to revive declining urban areas (DHS, 2004). The BNG noted that previously, when these interventions were undertaken, residents of the neighborhoods under consideration would be dislocated due to the new units being unaffordable to them. Promoting the development of affordable inner-city housing is identified as a priority through the development of medium-density social housing in inner-city buildings (DHS, 2004).

2.3.1.3.2.5 Development of social and economic infrastructure

The BHG identifies the development of social and economic infrastructure as essential for directing the focus away from just housing and moving towards the development of sustainable human settlements (DHS, 2004). Social and economic infrastructure includes parks, preschools, municipal clinics, police stations, and informal or formal shopping centers. The BNG encourages local authorities to survey existing informal settlements, determine the infrastructure requirements, and implement projects to develop this infrastructure.

2.3.1.3.2.6 Improved housing

The BNG promotes the construction of different kinds of housing to facilitate the development of suitable settlements for different circumstances. Enabling alternative technologies and advancing indigenous knowledge are identified in the BNG as strategies for improving housing and settlement design. Sustainability and environmental efficiency are also promoted (DHS, 2004). The BNG encourages audits, the rehabilitation of poor-quality housing, and the enforcement of national housing standards during the construction of new housing.

2.3.1.3.3 Adapting of government institutional arrangements & capacity building

The BNG encourages improving the relationships between government institutions that address human settlements in order to develop a coherent understanding of the roles and responsibilities of each institution. The policy also advocates for a change from a supply-driven framework of developing affordable housing towards a demand-driven framework (DHS, 2004). The demand-driven framework calls for greater government involvement to determine where demand is highest, where housing should be developed, and the type of housing that will be most suitable.

The BNG identifies local municipalities as an essential role player in the demand-driven framework, and it outlines a plan for their accreditation. Municipalities are to be accredited following their demonstration of the capability to plan, implement, and maintain human settlement development projects (DHS, 2004). This accreditation of municipalities will go hand in hand with institutional capacity building to ensure that many municipalities can undertake informal settlement upgrading projects.

Capacity building, as described in the BNG, is expected to address education on the planning, implementation, and maintenance of informal settlement interventions. Institutional support, the development of appropriate systems and procedures, and the provision of adequate resources are also institutional support initiatives highlighted in the BNG. Capacity building

will not only be aimed at local municipalities, but social housing institutions, financial institutions, and communities (DHS, 2004).

2.3.2 Policy Interpretation and Implementation

Since the establishment of the housing and informal settlements legislation and policies, the NHA and the BNG respectively, the South African government has, through various institutions, undertaken many projects towards realizing the goals of the policies. This section will review analyses of the outcomes and effectiveness of informal settlement interventions in South Africa. Most of the studies relied on are done by academics who have researched on informal settlement upgrading and relocation projects. The literature selected for this review has a broad timeline for capturing if there have been notable changes in the approaches with time.

2.3.2.1 Venter, et al. (2019) on regenerative development

Venter, et al. (2019) carried out a study on *regenerative* construction techniques for improving low-cost housing. Venter, et al. (2019) describe regenerative development as an approach that seeks to undo the degeneration of the earth's natural systems while developing human systems that can co-evolve with natural systems. Despite the BNG promoting alternative technologies and the protection of indigenous construction systems, Venter, et al. (2019) noted that regenerative development had not been utilised in informal settlement upgrading in South Africa.

In alignment with the BNG's objectives, Venter, et al. (2019) showcased three elements of regenerative development:

- Enhancement of ecological perspective,
- Utilizing regenerative construction materials for housing development,
- The user value and human development benefits of the regenerative development process.

Venter, et al. (2019) cited an internationally renowned regenerative development building technique known as *earthships* construction, which are houses constructed using earth-covered waste materials. Materials may include tyres filled with compacted soil or recycled building materials and discarded plastic or glass bottles (Venter, et al., 2019).

As the houses constructed using regenerative building techniques are earth plastered, they are more resilient to climate change than the typical corrugated iron shack dwellings, restorative due to the use of recycled material, and environmentally sustainable (Venter, et al., 2019).

Venter, et al. (2019) began their study in 2013 by appointing a project manager to work with seven volunteers and carry out small-scale regenerative building projects in Mangaung. The seven volunteers were also invited to participate in a skills development program managed by the University of the Free State (UFS). The training enabled volunteers to develop different eco-building skills through a practical approach by building an eco-built arts, crafts, and culture hub at Lebone Village Orphanage in the Mangaung metro municipality (Venter, et al., 2019). Sourced eco-materials included tyres, plastic, glass bottles, and clayey earth. Five of the project trainees went on to use the skills they had learnt to construct five houses (Venter, et al., 2019).

Figure 2 below shows a shack dwelling before (a) and after (b) it was converted into an earthship building by one of the trainees.



Figure 2: An earthship house under construction by one of five participants in Venter , et al.' (2019) study.

Venter, et al. (2019) found the following regarding the role of waste materials in regenerative construction:

1. Regenerative construction can play an essential role in recycling waste materials. Some of the products used in the projects such as the plastic bottles and the tyres have been identified as major pollutants in South Africa in the past two decades (Venter, et al., 2019).
2. Constructing using waste materials can significantly cut the costs of housing development. The study participants noted that even though the houses were built using waste materials, they are strong and the only component they had paid for was roofing (Venter, et al., 2019).

3. Study participants reported that temperature regulation inside their eco-build houses was much better than the temperature regulation inside their old houses which were corrugated iron built shacks (Venter, et al., 2019).
4. The study participants also noted a reduction in environmental risks with their regenerative houses. Vulnerabilities posed by corrugated earth dwellings, such as excessive noise during thunderstorms and higher risks of fire were reduced in the eco-built houses due to the clay earth covering of the house walls (Venter, et al., 2019).

Regarding enhancement of an ecological worldview, the study participants highlighted a shift in their view of waste materials and remarked that they now viewed them as useable (Venter, et al., 2019). The participants also indicated that they were teaching their children the eco-building methods they had learned from the study, showing a transfer of the knowledge they had gained (Venter, et al., 2019). The project also enhanced the creativity and imagination of the participants as they had to design their own houses to be aesthetically pleasing (Venter, et al., 2019). The participants formed a deeper attachment to their house while beautifying it. Venter, et al. (2019) highlighted that the personal attachment of each participant to their houses is not possible in the mono-type housing delivered by the South African government housing program.

The study participants also reported an increase in social cohesion in their communities as a result of their eco-built houses (Venter, et al., 2019). Teamwork in the construction process strengthened their relationships, and the curiosity of community members enhanced social cohesion (Venter, et al., 2019). The participants also reported that these projects were empowering for their communities as they no longer felt restricted to waiting for housing from the South African government, and they could use the skills learned from the study to build their own houses using readily available waste and soil materials (Venter, et al., 2019).

Overall, Venter, et al. (2019) found that South Africa has progressive policies on informal settlements, however the implementation remains slow and tends to be prevalently technical. Venter, et al. (2019) concluded that alternative approaches, such as regenerative development may accelerate the improvement of housing in informal settlements.

The study by Venter, et al. (2019) is significant in South Africa as correlations can be made between the earthships and the indigenous mud huts that were constructed in southern Africa before colonialization. The earthship structure shown in Figure 2 above is covered in clayey earth, which is also done when building a mud hut. While mud huts still exist in rural human

settlements, Venter, et al. (2019) demonstrate the benefits that can be derived from employing and enhancing this age-old African building technique in the construction of low-cost housing in informal settlements.

2.3.2.2 Marais, et al. (2018) longitudinal research on informal settlement upgrading and poverty alleviation

Marais, et al. (2018) carried out research on the effect of informal settlement upgrading on the Freedom Square settlement in Mangaung, South Africa. The study aimed to determine, if any, the relationship between informal settlement upgrading and poverty reduction (Marais, et al., 2018). The study was unique because it was undertaken over 20 years.

Marais, et al. (2018) identified eight means through which secure housing contributes towards poverty reduction:

- Secure housing can provide stability for households, who can, in turn, dedicate their energy towards securing employment, running businesses, and improving skills and education.
- Housing can have an effect on mental and physical wellness.
- Housing can also be used as business premises or sublet for additional income by households.
- Housing assets can increase psychological benefits such as an enhanced sense of security, authority, and freedom. The responsibilities associated with managing a house can also reduce risky conduct and result in longer-term planning.
- Housing can lead to asset generation through physical assets (the house itself), as well as human and social capital through the community in which the home may be located.
- Housing offers inter-generational value as the next generation may inherit the house. Children from secure housing gain easier access to education for financial, human, and social capital.
- Housing can also be used to gain access to social and human capital.

Marais, et al. (2018) were different in their approach to assessing poverty in the community in that they requested the households to rank their level of poverty through an arbitrary scale. Households were requested to rank their perceived wealth status on a perceived ladder with six levels, where the poorest South Africans were ranked on the lowest level and the richest would be placed on the highest level of the ladder (Marais, et al., 2018).

Marais, et al. (2018) found that between 2008 and 2014, almost two-thirds (65.7%) of the households perceived their status as having either remained the same or improved since they

established themselves in Freedom Square. As 65.7 % of the household residents indicated that their economic situation has either improved or stayed the same, Marais, et al. (2018) found that this was an indication that the informal settlement upgrading effort was beneficial for the community.

Marais, et al. (2018) also found that second-generation households within the community rated their wealth status significantly higher than the first generation. Most second-generation households had inherited their houses from their parents and, as a result, had profited from the stability provided by having tenure security in their community. For second-generation households that purchased their houses in the settlement post tenure legalization, there was a likelihood that they may have been better off prior to settling in Freedom Square, which would have positive indications for spatial-economic integration as the settlement had initially been intended for households earning less than R800.00 per month in 1992 (Marais, et al., 2018).

Marais, et al. (2018) determined that the accumulation of assets occurs differently than what South Africa's BNG envisages. In reality, the process of accumulating assets is slow and occurs through securing tenure and housing, which results in household stability and improved access to education and employment opportunities (Marais, et al., 2018). Although household incomes in 2019 were less than they were in 2014, Marais, et al. (2018) still found strong evidence that informal settlement upgrading in Freedom Square had resulted in a reduction in poverty in the community. When considering other indicators such as financial assets, education levels and the perceptions the households have on their own level of wealth, most households in Freedom Square are better off than when they first settled in the community (Marais, et al., 2018).

2.3.2.3 Klug and Vawda (2009) compared the approaches by different metropolitan municipalities towards informal settlements

Klug and Vawda (2009) carried out a comparative study aimed at analysing South Africa's response to informal settlements through the implementation of the BNG. Klug and Vawda (2009) noted the growth of informal settlements in all the major towns and cities of South Africa, and according to them, informal settlement upgrading had not been adopted as a widespread practice. For their study, Klug and Vawda (2009) selected the City of Johannesburg and the City of Cape Town as case studies due to their divergent approaches towards realizing the BNG, and they analysed the strategies, in-situ upgrading, the quantification of informal settlements, and institutional arrangements in the two municipalities (Klug & Vawda, 2009). Case studies were identified and analysed in each city.

2.3.2.3.1 Cape Town Metropolitan Municipality's approach to realizing the BNG

Although the City of Cape Town Metropolitan Municipality (CoCT) had implemented projects often cited as poor examples of addressing informal settlements, Klug and Vawda (2009) found evidence that the BNG was being executed with noteworthy success in the CoCT. The CoCT also partnered with NGOs to implement the livelihoods approach of the BNG (Klug & Vawda, 2009).

In 2008, the CoCT updated its policy vision on informal settlements and stated that it plans to *" upgrade informal settlements in a sustainable manner which aligns to the City's integrated housing plan and addressed peoples Constitutional rights to health and dignity"* (Klug & Vawda, 2009). The CoCT identified that the growth in informal settlements was the outcome of immigration and accepted that informal settlements would remain a feature of the city in the medium to long term (Klug & Vawda, 2009). The CoCT is one of the four largest urban centres in South Africa. When Klug and Vawda (2009) wrote their paper, immigration to the CoCT was very high as 15 years earlier, apartheid had ended, resulting in previously excluded groups being able to immigrate to the city and gain access to the economic opportunities.

Klug and Vawda (2009) identified the following guiding principles for the CoCT's policy on informal settlements:

- Recognition of peoples' constitutional rights.
- Enhancing access to essential services through an incremental housing upgrading strategy.
- The establishment of a transparent and equitable prioritization model.
- Greenfield development would not be exclusively applied to settlements in the urban periphery.
- Housing will be allocated on a "first come, first serve" basis, and backyard dwellers will also be recognised as eligible to receive housing assistance.
- Zero tolerance for land invasions.
- Communities will be continuously developed.
- An integrated development approach will be implemented through the city's land use policies.

The CoCT developed a model for incremental upgrading of informal settlements which would roll out "essential, basic, then full services" to households, with essential services being the lowest supply level and full service provision being the highest (Klug & Vawda, 2009).

Essential services may be interim interventions such as water trucks to service a community in dire need of water provision, and this intervention would then be incrementally improved towards becoming a fully provided service. Water service is fully provided when standpipes or piped water are provided to each household in the community.

The Department of Human Settlements (DHS) (2019) published *neighbourhood planning and design guidelines* in which service provision levels are described, such as water, sanitation, and electricity. In continuing with the example of water provision, basic water provision is defined as a water supply providing uninterrupted clean drinking water for a minimum of 350 days in a year with no interruptions for more than 48 hours consecutively (DHS, 2019). All municipalities in South Africa use these DHS neighbourhood planning guidelines, and they are the basis on which commonly used terms such as "basic infrastructure" are defined. Basic services can be communal, however, full-service provision occurs when basic services are provided to each household.

The model developed by the CoCT identified infrastructure and services such as sanitation, water, electrification, and refuse collection and described various degrees of delivery through the incremental development process. The CoCT further developed a model for identifying settlements needing urgent intervention and those whose upgrading could be delayed. The criteria for classifying the settlements included environmental vulnerability, such as settlements on flood plains, fire risks, and whether or not the settlement has basic infrastructure and services (Klug & Vawda, 2009).

According to Klug and Vawda (2009), short-term interventions would include the following:

- The CoCT would provide only essential or short-term services for settlements in precarious locations, such as settlements on private land, flood plains, and road reserves, while longer-term interventions are being sought.
- A priority land acquisition program would be undertaken.
- Formal and methodical movement routes would be developed within settlements.
- Strict rules would be put in place to manage growth in the informal settlements.

In the long term, the following interventions would be undertaken:

- Basic services would be implemented on land targeted towards new settlements. This land would be identified through the city's land use and spatial planning policies.
- An incremental upgrading plan would be developed, which would include in-situ or rollover upgrading of informal settlements.

- Encouraging backyard dwellings to discourage land invasions.
- De-densification of dense informal settlements to promote health and safety.
- Where relocations of households will be required, each household will be allocated a land parcel/plot.
- Putting strict rules in place to manage growth in the informal settlements.
- Developing skills development programs in the communities to improve access to economic opportunities (Klug & Vawda, 2009).

Klug and Vawda (2009) found that the incremental strategy adopted by the CoCT encouraged the deployment of multi-disciplinary teams to upgrade informal settlements. The Integrated Human Settlement Services (IHSS) was established as a primary agent which would lead the teams and coordinate them (Klug & Vawda, 2009). The projects would be funded through various funding mechanisms established by the National Department of Human Settlements (Klug & Vawda, 2009). The CoCT also partnered with Development Action Group (DAG), an NGO, to upgrade two informal settlements, Hangberg and Freedom Park. During these projects, enhancing the livelihoods of residents was established as a priority (Klug & Vawda, 2009).

The Freedom Park settlement was illegal as the initial residents had occupied the land without permission. Through mediation, the CoCT was able to realize its responsibility to provide housing for urban low-income households, and the settlement was eventually legally recognized (Klug & Vawda, 2009). The project planned to develop services and bulk infrastructure for the settlement incrementally, with the eventuality of a house being constructed on each plot (Klug & Vawda, 2009). A livelihoods analysis was done during the project planning phase to identify the social and economic challenges in the settlement. The project developed plans to address these challenges, including adult literacy classes and courses for skills such as construction and preschool caring. Neighbourhood watches by community members were established to curb crime (Klug & Vawda, 2009).

The CoCT also worked with the DAG to develop business plans for upgrading Hangberg, a Hout Bay settlement comprising low-cost housing apartments and informal dwellings (Klug & Vawda, 2009). Due to the increasing demand for housing in the area, the CoCT released council-owned land within the community to allow the community to develop their own low-cost housing while awaiting formal housing development by the city (Klug & Vawda, 2009). The CoCT provided essential services such as potable water and sewage while developing

business plans to provide full services and infrastructure. Residents livelihoods were incorporated into the project plans by encouraging tourism to the community (Klug & Vawda, 2009).

2.3.2.3.2 Johannesburg Metropolitan Municipality's approach to realizing the BNG (2004)

According to Klug & Vawda (2009), the City of Johannesburg Metropolitan Municipality (CoJ) had mainly focused on completing large "greenfields" projects commissioned before the BNG policy's establishment, and very few informal settlement upgrading projects were underway in the municipality. The few informal settlement upgrading projects underway focused on providing tenure, services and infrastructure, and housing. This focus limited the residents of these informal settlements from access to the urban opportunities as it did not account for their livelihoods (Klug & Vawda, 2009).

To upgrade informal settlements, the CoJ initiated a study on the feasibility of in-situ upgrading of approximately 130 informal settlements. The study also aimed to develop an in-situ upgrading program that would be aligned with the BNG (Klug & Vawda, 2009). The CoJ then developed a strategy for granting legal recognition to informal settlements using existing legislation. Existing town planning schemes would be used to rezone informal settlements as "special zones for transitional residential settlements", and empower the city to upgrade them in situ (Klug & Vawda, 2009). This strategy was an adaptation of an approved South African legislative act known as the "Development Facilitation Act of 1995", which empowered cities to identify land development areas, recognise settlements within these areas, and grant tenure to residents of the settlements (Klug & Vawda, 2009).

For settlements on privately owned land, the CoJ planned to enter into agreements with owners, negotiate partnerships, investigate land swops, or expropriate the land (Klug & Vawda, 2009). The CoJ did not develop a relocation policy, and it was decided that relocation would be implemented on a case-by-case basis (Klug & Vawda, 2009). There was also a proposal that the city continue to identify and purchase land parcels for de-densification and relocation of residents of unsuitable informal settlements (Klug & Vawda, 2009).

In conclusion, Klug and Vawda (2009) found that complete implementation of the BNG policy was yet to be undertaken in the in-situ upgrading of informal settlements, particularly in the CoJ. However, legal recognition and plans for providing services, infrastructure, and housing units were established in both the CoCT and CoJ. Klug and Vawda (2009) noted and applauded the cooperative approach toward upgrading informal settlements between various government

departments in the CoCT and the CoJ. In the CoJ, Klug and Vawda (2009) found that the city had demonstrated how existing legislation could be used to speedily grant legal recognition for informal settlements and their in-situ upgrading (Klug & Vawda, 2009).

In 2014, Huchzermeyer, et al. (2014) conducted research mapping the growth of informal settlements in the CoJ. They found that the greenfields delivery of new housing through the RDP program was still the most popular approach for addressing informal settlements in the city (Huchzermeyer, et al., 2014). Five years later, Venter, et al. (2019) found that age-old African building techniques being adopted in other countries as new technologies are not being used to address informal settlements in South Africa. The literature, therefore, indicates low appetite to adopt new approaches for addressing the inadequate supply of affordable housing and a resultant inability to "eradicate" informal settlements.

2.3.3 Funding Strategies

This section describes strategies that the government has adopted to develop and expand the funding needed to address informal settlements. As noted in the Constitution, government can only provide adequate housing "within its available resources", hence developing strategies to increase funding for these interventions is critical for the success of the policies.

2.3.3.1 Funding through the state budget

The RDP program is the most favored low-income housing development program, and it is funded through state and provincial taxes (Huchzermeyer, et al., 2014). There are also subsidies for individual households, such as the Finance Linked Individual Subsidy Program (FLISP), which subsidizes rental expenses and mortgages for qualifying households (DHS, 2021). These subsidies are also funded through taxes. Therefore, government funds most of the interventions targeting informal settlements and the development of affordable housing.

2.3.3.2 Private developer investment

In 2019, the City of Johannesburg (CoJ) adopted a policy obliging private developers to construct housing for low-income households (COJ, 2020). The CoJ Inclusionary Housing policy requires all private developers constructing residential housing complexes of 10 units or more to ensure that at least 20% of the units in the development are low-income housing units. The city incentivizes the implementation of the policy by relaxing allowable Floor Area Ratios (FAR) (COJ, 2020). This is the only other strategy that was found by this research study to be underway towards funding informal settlement and affordable housing interventions in South Africa.

In 2004, the BNG policy encouraged the state to enhance the participation of private entities in the development of affordable housing. Noting that CoJ policy was tabled 14 years later, and it is the only such policy identified in South Africa, more effort needs to be directed in South Africa toward identifying additional mechanisms for funding affordable housing development and informal settlement upgrading interventions.

2.4 Brazil

2.4.1 Legislation, Policy and Institutional Arrangements

The 1988 Federal Constitution of Brazil designates the responsibility for housing development to the federal government and the states[1] (Catalyst Communities, 2014). The federal government is responsible for developing general legislation and policy, and the states are tasked with enhancing these laws and drafting their own policies in areas not covered by federal laws. This arrangement is similar to the institutional structure in South Africa.

The Federal Constitution of Brazil recognizes housing as a fundamental and social right to be implemented by the government. The Constitution is supported by the SNHIS (Sistema Nacional de Habitação de Interesse Social), which is a federal law aimed at developing adequate, sustainable, and suitable housing for low-income households. The SNHIS is supported in its function by the national housing fund - Fundo Nacional de Habitação de Interesse Social (FNHIS) (Cardoso & Denaldi, 2019).

The Federal Constitution of Brazil advances a principle on the "social function of property", which obligates owners of private property to utilize their property to the benefit of society (Denaldi & Cardoso, 2021). This principle has been instrumental in securing tenure for slum dwellers because, through it, it has been legislated that slum dwellers can secure tenure in the land on which their housing is contained by proving that they have been settled for a minimum of 5 years with no complaints from the original owners of the land (Denaldi & Cardoso, 2021). Most slum dwellers use electoral registers to prove their settlement timelines (Burra, 2005).

Numerous authors have lauded Brazil as having progressive policies on upgrading of informal settlements. In a comparative study of informal settlements in Brazil, China, and India, Xuefen (2018) stated that Brazil's policies were the most progressive, emphasizing the provision of infrastructure and services, and in-situ upgrading which promotes integration with the broader city. Once tenure is secured, slum dwellers are more willing to invest towards the improvement

[1] In Brazil, a "state" is equivalent to a South African province.

of their housing through incremental upgrading (Turner, 1976). This literature review focuses on two policy programs implemented in Brazil towards slum upgrading and affordable housing development: the Growth Acceleration Program (PAC), which was launched by the federal government in 2007, and the Sao Paulo policy shift, which occurred in 2001 and focused on upgrading informal settlements.

2.4.1.1 The Growth Acceleration Program (PAC)

Brazil's PAC program was launched in 2007 to undertake large scale infrastructure development throughout the country (Denaldi & Cardoso, 2021). The PAC has been described as an ambitious program of interventions, policies, and funding that directs the efforts of the federal government, the states, and municipalities towards upgrading and integration of informal settlements at the largest scale that has been undertaken in Brazil (Denaldi & Cardoso, 2021). One thousand and seventy-two (1,072) municipalities throughout Brazil undertook projects funded by the PAC program (Denaldi & Cardoso, 2021).

Under the program, state governments and municipal authorities submit business plans to the PAC administrating federal authority. The plans describe the projects they plan to undertake and the required funding (Denaldi & Cardoso, 2021). The slum upgrading projects are designed and implemented under the principle of "Integrated Upgrading", which requires municipal infrastructure and services, housing development, and social, economic, and environmental factors to be included in the scope of the projects (Cardoso & Denaldi, 2019). If the business plans are approved, the federal government releases funds directly to the local authorities to implement the projects. The business plans submitted by the state governments also have to illustrate their ability to undertake the projects by demonstrating their technical, project planning, and project management skills (Denaldi & Cardoso, 2021).

The PAC program allows for various types of slums to be upgraded (Denaldi & Cardoso, 2021). The program also allows for large-scale and small-scale projects to be financed through it. Cardoso & Denaldi (2021) noted that larger metropolitan areas, with larger populations and larger slums have been allocated a higher share of the PAC's funding. When investigating project outcomes in 2021, Cardoso & Denaldi (2021) found that 33% of the projects implemented through the PAC program had been completed, 43% had adequate progress, 19% required intervention, and 5% were concerning.

2.4.1.2 Sao Paulo Municipality policy shift of 2001

In 2001, a new São Paulo administration redrafted the municipal master plan, prioritizing urban development and housing for lower-income groups (Budds, et al., 2005). At the time, São Paulo was the most populous city in Brazil. Rapid urbanization of the city caused a rise in land and property prices, which resulted in the development of slums for settlement by the city's low-income population (Budds, et al., 2005). According to Budds, et al. (2005), the policy alterations focused on four areas: institutional restructuring, finances, tenure legalization, and housing alternatives. The new policy targeted five settlement types: squatter settlements with illegal occupants, illegal land subdivisions, public housing estates constructed by the city, reservoir basin settlements surrounding hydropower generation reservoirs, and illegally occupied inner city buildings (Budds, et al., 2005).

The new Sao Paulo policy decentralized the municipal government to make it more accessible to the public. Clear objectives were created for each department, promoting efficiency and certainty in implementing municipal plans. A public participation unit consisting of multiple municipal agencies was also established (Budds, et al., 2005). The new policy prioritized the housing needs of citizens living in low-income settlements, most notably, the poor and most vulnerable. A key feature of the Sao Paulo policy is that it targeted the poor in informal settlements and low-income households earning a maximum of sixteen times the minimum wage (Budds, et al., 2005).

Notably, a household in South Africa earning sixteen times the minimum wage would not be classified as a low-income household. Such a household would be a middle-class household in South Africa. In fulfilling the aim of this research study to identify alternative policies that can be adopted in South Africa, this contrast is very important as it highlights that the recommended policies will require further investigation and tailoring to suit varying local factors.

The São Paulo municipality identified tenure legalization as essential for enabling informal settlement dwellers to access funding for self-sponsored improvement of their housing structures. The city began reprioritizing the municipal land usage plan to favor low-cost housing. Residents who settled on land not reserved for the construction of schools and hospitals were given tenure security through title of a 250 square-meter plot by the city (Budds, et al., 2005). To qualify for title, residents were required to have settled on the land for a minimum of 5 years. For settlements on private land, the city would find the legal owners and purchase the land from them using building rights vouchers. The land would then be subdivided, and the settlers would be given tenure security if they had settled on the property

for the minimum of 5 years. Occupants of unsuitable land were relocated to alternative low-cost housing developments within the municipality (Budds, et al., 2005).

The municipality also developed three alternatives for low-cost housing development:

- In-situ renovations.
- Self-funded or municipal subsidized self-contracted construction.
- Rent-to-buy settlement in low cost housing high rise buildings.

Subsidies were given according to household income, and various housing alternatives of different sizes for different income groups were developed. The municipality partnered with the local Bar Association for Lawyers to assist residents in accessing municipal property subsidies and titles. They also partnered with technical organizations and universities to assist residents through the process of drafting and obtaining municipal approvals for their development and housing plans (Budds, et al., 2005)

2.4.2 Policy Interpretation and Implementation

2.4.2.1 De Camargo Cavalheiro & Abiko (2015): Evaluating slum (favela) resettlements: the case of the Serra do Mar Project, Sao Paulo, Brazil

de Camargo Cavalheiro & Abiko (2015) conducted a study into an informal settlement project where residents of the Bairros-Cota favela[2] were relocated to the Reubens Lara Complex in the city of Cubatão. The project was funded through the PAC program, and it was undertaken within the state of Sao Paulo (de Camargo Cavalheiro & Abiko, 2015).

The Bairros-Cota favela developed in a protected area of the Atlantic Forest when workers constructing highways into the city of Cubatão settled in the forest. Further development in the area and its economically attractive location appealed to workers from all over Brazil, which resulted in an influx of people seeking economic opportunities. As is often the case, low-income housing was in poor supply, resulting in low-income households occupying whatever land was available. This led to further development of the Bairros-Cota settlement. The project aimed to remove some of the families that inhabited the area to recover and protect the forest (de Camargo Cavalheiro & Abiko, 2015).

Families from the Bairros-Cota settlement were relocated involuntarily to the Reubens Lara Complex, a condominium-type complex. The complex was unique because it was built in a central city neighborhood and offered various accommodation types. Social support for resettled residents was also provided for twenty-four months, increasing from the usual six

[2] “Favela” is the name for slums or informal settlements in Brazil

months. The complex buildings included solar panels for water heating to reduce operating costs for residents (de Camargo Cavalheiro & Abiko, 2015).

de Camargo Cavalheiro & Abiko (2015) focused on two key areas to assess changes residents' quality of life: condominium accommodation and social work. Living in condominiums was critical due to the differences between these types of settlements and the single-unit type dwellings residents were accustomed to. de Camargo Cavalheiro & Abiko (2015) found that the maintenance of common areas not only forced interaction on residents who may not have known each other, but it also created a requirement for maintenance fees that residents had not previously dealt with. Social work was identified as important due to the opportunities it presented to residents to ensure the sustainability of the settlement through social participation. Organization, social empowerment, environmental and conservation education, and socio-economic development were identified as important areas for the sustainability of the settlement (de Camargo Cavalheiro & Abiko, 2015).

2.4.2.1.1 Residents satisfaction with condominium living

The study's result indicated that satisfaction with the new settlement was not influenced by the eagerness of households to relocate from the favela. Almost half the residents who responded to the study stated that they did not want to leave the favela, yet most residents (97%) indicated that the relocation had a positive impact on their quality of life. Residents who wanted to move from the favela rated the change in their livelihoods more positively. Some of the factors highlighted by residents who rated the move positively were the availability of job opportunities near the complex and the infrastructure improvements (de Camargo Cavalheiro & Abiko, 2015).

The maintenance fees of condominium living were regarded as expensive by most residents and were a source of dissatisfaction. Other sources of dissatisfaction were the smaller housing units, separation from relatives, lack of private leisure spaces such as backyards, and housing structure defects. While these inconveniences were highlighted, most residents rated their new housing units positively, most notably those who indicated they were unhappy with their previous housing units (de Camargo Cavalheiro & Abiko, 2015).

2.4.2.1.2 Residents satisfaction with social work

The social work activities in the complex mainly focused on training community leaders for condominium management and processing issues such as construction defects. As a result, only five percent of the study respondents indicated that social work had contributed positively to

their livelihoods. Community leaders also complained that social workers had not supported their efforts to integrate the settlement e.g. to create neighborhood associations and social clubs (de Camargo Cavalheiro & Abiko, 2015).

2.4.3 Funding Strategies

2.4.3.1 Funding informal settlement rehabilitation projects through taxes and loans

The Brazilian federal government funds informal settlement upgrading projects through federal taxes and loans from development banking institutions. In 1999, Brazil signed a loan with the Inter-American Development Bank (IDB) to develop a program for upgrading informal settlements known as the Habitar Brasil/BID (Cardoso & Denaldi, 2019). By 2019, most informal settlement upgrading projects were undertaken through state agencies such as the National Housing Fund (FNHIS), and the projects were funded through federal taxes (de Camargo Cavalheiro & Abiko, 2015). The PAC program was also funded through loans from the IDB, the World Bank, and federal taxes (Denaldi & Cardoso, 2021).

2.4.3.2 Property Rights Certificates for private developers

In Sao Paulo, the local authorities devised various schemes to encourage funding from private sector participants. These schemes included exemption from paying municipal taxes and building ownership fees when investing in low-income housing development projects (Budds, et al., 2005).

The Brazilian government also employs strategies such as building rights vouchers to acquire privately owned land on which informal settlements are located (Budds, et al., 2005). These rights allow landowners to purchase alternative land from the city and are not worth any monetary value outside the city where they are issued (Budds, et al., 2005). Municipal legislation was also enacted that encouraged private owners of unused land or under-occupied buildings in areas of the municipality earmarked for low-cost housing to develop their properties for low-cost housing.

2.5 India

2.5.1 Legislation, Policy and Institutional Arrangements

Prior to 2007, India’s national legislation only prescribed laws in areas of national interest, such as defense and finance, and housing and urban development policies were left to each state (Burra, 2005). However, the states could not enact legislation on land owned by federal agencies as they were governed under the national legislation (Burra, 2005).

In 2007, the national Ministry of Urban Development and Poverty (as of 2023, the department is now the Ministry of Housing and Urban Affairs-MoHUA) published a policy to develop slums. The policy promoted the provision of land tenure, upgrading or relocation, and basic infrastructure and services in slum communities (MoHUA, 2007). Prior to this legislation, state agencies would inhibit the provision of infrastructure to informal settlements on their land to discourage long-term settlement (Burra, 2005).

The section below describes the various policies enacted in India to improve the lives of slum dwellers. The national government enacts most policies through various departments, however the state of Maharashtra developed an innovative slum rehabilitation policy that does not require state funding for projects, and this will also be described below.

2.5.1.1 Jawaharlal Nehru National Urban Renewal Mission

In 2005, the National Housing & Urban Poverty Alleviation Department of India launched the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) to develop economically viable, equitable, and inclusive cities through the establishment of City Development Plans (CDPs). The CDPs were used to identify areas lacking infrastructure, such as potable water and sewerage reticulation, roads and stormwater management, and areas lacking adequate housing supply (MoHUA, 2007). Once the areas are identified, the JNNURM requires cities to develop a 20-25-year development framework that details the interventions required to address the areas lacking infrastructure, essential services, and suitable housing. Cities are then required to develop projects to implement the interventions in the areas where they are required (MoHUA, 2007).

The JNNURM is composed of four schemes that are referred to as *missions*. Two of the missions are similar, with differentiations resulting from the project size. The Urban Infrastructure & Governance (UIG) scheme applies to large cities of national importance and focuses on governance reforms and the development of citywide bulk infrastructure (Kapur, 2013). This scheme is similar to the Urban Infrastructure Development (UID) scheme, which applied to small and medium towns. The UIG and UID schemes are administered by India's Ministry of Urban Development (Kapur, 2013). The last two schemes of the JNNURM are also similar as MoHUA administers them, and they focus on providing housing and services to low-income families. These are the Basic Services to the Urban Poor (BSUP) scheme for large cities and the Integrated Housing & Slum Development Program (IHSDP) for smaller towns and cities.

2.5.1.2 The National Urban Housing & Habitat Policy of India

The National Housing and Habitat Policy of India was adopted in 2007. The policy aims to develop affordable housing for low-income households through empowering public and private organizations (MoHUA, 2007). The policy was developed after MoHUA observed an imbalance between the demand and supply of affordable housing in urban areas. The policy promotes inclusive urban development and the provision of decent housing for impoverished households (MoHUA, 2007).

The primary features of the policy are as follows:

- Development of affordable housing for urban low-income households and locating and acquiring additional land for housing development.
- Setting aside 10-15% of land in all housing developments or 20-25% of Floor Area Rations (FAR) for low-income households.
- Encouraging private sector participation through incentives such as Transferable Development Rights (TDR) and additional Floor Area Ratios (FARs).
- Developing housing subsidies for low-income households.

The policy forecasted that approximately half the population of India would be living in urban areas by 2014. However, this was an overly ambitious forecast as in 2022, only 36% of India's population lived in urban areas (World Bank, 2023). As a result, the India's government was tasked with developing new integrated cities for this population. The emphasis of the policy towards accommodating the forecasted population is on construction of greenfield housing developments and mass rapid transportation systems for integration (MoHUA, 2007).

Towards existing slums, the policy emphasizes existing housing improvement through urban renewal and in-situ upgrading. In agreement with literature from South Africa, such as the BNG, and literature from Brazil, such as the Federal Constitution, tenure security is recognized in the policy as an important tool for enabling in-situ upgrading of informal settlements and housing improvement (MoHUA, 2007). The policy also calls for developing basic infrastructure and services such as potable water, sanitation, sewerage, stormwater management, and waste disposal in informal settlements.

2.5.1.3 Rajiv Awas Yojana (RAY)

The Rajiv Awas Yojana (RAY) scheme was also developed by MoHUA in June 2011 with a vision to develop a "slum-free India" (magicbricks, 2022). The scheme encompasses all slums,

regardless of whether or not they are registered with the Government, and aims to convert shacks in slums into permanent dwellings through in-situ upgrading (MoHUA, 2013).

The RAY scheme was developed with the following objectives:

- Enhancing the housing development, basic infrastructure, and social services to slums.
- Developing reforms in policy areas that result in the development of slums and promoting the construction of affordable housing.
- Improving the employability and income-earning ability of slum dwellers through skills development
- Enabling easier access to credit for slum dwellers to improve their housing and living conditions.
- Strengthening institutional capacity in Municipal and State governments through improved human resources and institutional networks.
- Empowering slum dwellers by ensuring their participation at all stages in the decision-making process and nurturing slum dweller community organizations (Slum Dwellers' Associations / Federations).

The RAY scheme is implemented in two stages. The first stage is the formulation of "Slum-free City Plans of Action (SFCPoAs) for an entire city and Detailed Project Reports (DPRs) for each of the selected slums by the local authorities (MoHUA, 2013). The SFCPoAs include city-wide mapping and profiling of all existing slums, land usability analyses in the slums, slum prioritization, as well as preventative plans such as assessment of housing shortages and developing city-wide plans for the construction of affordable housing to prevent the development of new slums (MoHUA, 2013).

The DPRs are developed for each slum according to their prioritization, and they encompass the provision of basic infrastructure and services such as potable water, sanitation, and housing construction. The DPRs also include the development of social amenities and skills development interventions (MoHUA, 2013). The RAY policy prioritizes in-situ development of informal settlements to prevent disruptions of social and economic networks. Where relocation cannot be avoided, the policy encourages enhancing the mobility of slum dwellers and redeveloping their social and economic networks (MoHUA, 2013).

The second stage is the implementation of the SFCPoAs and the DPRs by the local authorities. To implement the plans, funding is obtained from the Federal government, the State government and the Municipality as well the project beneficiaries (MoHUA, 2013).

2.5.1.4 The Slum Rehabilitation Scheme (SRS) of the Maharashtra State

The Slum Rehabilitation Scheme (SRS) of Maharashtra State was established in 1995 under the Slum Rehabilitation Authority (SRA) as a strategy for slum redevelopment within the state. According to Mukherjee & Raut (2017), the SRS was established on the guiding principle that "if inequality is to be removed, there have to be unequal laws". This principle meant that the schemes' provisions would be structured to favor low-income households to address inequality.

Similar to South Africa's apartheid separations, India's society grouped the population into different classes known as castes. Members of the lowest castes were subjected to economic and social discrimination, even violence (BBC, 2019). To address the historically generated inequality, reservation policies have been enacted in sectors such as education and government jobs that keep a percentage of jobs for previously disadvantaged groups (Law Society, 2021).

The SRS scheme was enacted in three cities of the Maharashtra State: Pune, Mumbai, and Nagpur. An assessment was completed on the slums within these cities which found that 80% of the slums could be rehabilitated in situ (Mukherjee & Raut, 2017).

The SRA was responsible for surveying communities and establishing a database detailing the conditions of various slums. The SRA would also be responsible for developing policies for rehabilitating slums in the state of Maharashtra (Mukherjee & Raut, 2017). The SRA identified in-situ rehabilitation of slums as the preferred strategy, however where it was infeasible, slum dwellers would be relocated to suitable locations (Mukherjee & Raut, 2017).

The SRS scheme relied on private developers constructing multistory buildings and issuing housing to slum dwellers for free in the buildings in return for benefits from the state and land ownership (Mukherjee & Raut, 2017). The eligible slum dwellers were identified through the state electoral roll on a specific date because that would confirm long-term settlement in the slum. When the SRS was established, this date was selected as January 1995. The scheme was only implemented in settlements where a minimum of 70% of the settlers were eligible to receive housing (Mukherjee & Raut, 2017). As time progressed, the period for eligibility has been updated and households residing in slums that do not have the 70% minimum population of eligible settlers have been included. As of 2023, households living in slums constructed between 2001 and 2011 are eligible to receive housing under the scheme (SWARAJYA, 2023).

Under the SRS, developers submit development plans to the SRA, and to enhance public participation, the slum dwellers select the preferred developer who constructs the new multistory housing within their slums (Mukherjee & Raut, 2017). Developments constructed

under the SRS have two components: an upgrading or rehabilitation component and a sale component. The sale portion of the developments is how developers generate their profits for carrying out the rehabilitation portion (Mukherjee & Raut, 2017). In addition to receiving a free housing unit through the SRS scheme, each eligible household receives an amount of Rs 20,000 (±ZAR 4,500) that should be used for the maintenance of their housing unit (Mukherjee & Raut, 2017). In South Africa, these fees may be sufficient for maintenance costs over a period of approximately six months.

To entice private developers to invest in the scheme, Maharashtra's government developed a formula to grant them additional Floor Space Index (FSI) on their developments for each of the free housing units developed (Burra, 2005). The additional FSI would increase the number of sale units within the development enough to ensure that the project would still be profitable for the developer (Burra, 2005). Should a development require more than the maximum allowable FSI of 2.5, the developer would be issued with a Transfer Development Rights (TDR) Certificate that could be used to purchase land from the city without exchanging money (Burra, 2005). TDRs could also be sold to other developers in the market for money (Burra, 2005).

2.5.2 Policy Interpretation and implementation

Following the adoption of the policies towards slums, the Indian government has undertaken various projects to realize the policy goals. This section will review analyses of the outcomes and effectiveness of the slum interventions borne from the policies. Most of the analyses relied on are by academics and members of civic organizations who have researched informal settlement upgrading and relocation projects and participated in some of the projects.

2.5.2.1 Mukherjee and Raut (2017)

Mukherjee and Raut (2017) consulted 48 representatives of households from three project sites who had received apartments through Maharashtra's SRS program in Mumbai. The size and income of each respondent's household was also noted to assess which economic class benefited the most from the program. Most (85%) households had less than seven members and had monthly incomes below Rs. 20,000 (±ZAR 4,500) (Mukherjee & Raut, 2017).

2.5.2.1.1 Services and Infrastructure

On services and infrastructure, Mukherjee and Raut (2017) found that the SRS program had successfully provided sufficient and reliable water to resettled households. None of the survey respondents complained about water supply. The SRS also successfully provided a toilet for

each household, saving some residents from relieving themselves in the open and others from unhygienic shared toilets. Water logging complaints in the sewage pipeline were noted by some residents who suspected the size of the pipelines to be the source of the problem (Mukherjee & Raut, 2017).

When it comes to electricity, survey respondents were questioned on two aspects: power cuts and household expenditure on electricity. No complaints were received from respondents regarding power cuts (Mukherjee & Raut, 2017). Regarding household electricity expenditure, the majority (62%) of respondents complained that the cost of electricity had increased significantly without an accompanying reason. Other residents indicated that the electricity bill had remained unchanged following the upgrade (Mukherjee & Raut, 2017).

2.5.2.1.2 Building maintenance costs and security costs

Building maintenance costs were a source of the most dissatisfaction among survey respondents. None of the developers who had provided housing to the respondents had complied with the requirement to provide Rs 20,000 per household towards maintenance fees (Mukherjee & Raut, 2017). On all three projects whose beneficiaries Mukherjee and Raut (2017) consulted, the beneficiaries ended up bearing the maintenance costs for their housing before the ten years period as per the SRS's requirements (Mukherjee & Raut, 2017). Maintenance of elevators was found to be a major issue in most of the projects whose beneficiaries Mukherjee and Raut (2017) surveyed. On one project site, the elevators had been permanently damaged within six months of occupation and most of the damage was found to be a result of improper use by building residents (Mukherjee & Raut, 2017).

Security fees were also assigned to be the responsibility of all residents within the housing development (Mukherjee & Raut, 2017). In one project site, residents formed committees comprised of both beneficiaries of the free housing and those who had purchased their apartments. They established proposals for implementing security within their development by paying monthly fees for CCTV cameras and security guards (Mukherjee & Raut, 2017). In addition to providing security, the guards also curbed improper use of the lifts resulting in fewer breakages and complaints by residents about their functioning (Mukherjee & Raut, 2017).

2.5.2.1.3 Housing Unit Size

The survey respondents often complained about size of the housing units (Mukherjee & Raut, 2017). Households of approximately seven members were rehoused in apartments of 20 square meters. In their previous slum units, residents could build temporary floors, however this was

not possible in the apartments (Mukherjee & Raut, 2017). Some households had been promised two apartments by developers due to their size of their previous housing units, but in most cases, the promise had not been fulfilled (Mukherjee & Raut, 2017).

In one of the SRS projects, Mukherjee and Raut (2017) found that the developer had not issued residents with ownership documents for the apartments and had stated that the apartments belonged to them and residents would only granted ownership after ten years, which was a breach of the scheme's requirements (Mukherjee & Raut, 2017).

Most (92%) beneficiaries were not opposed to their new high-rise settlements and generally preferred to live on higher floors due to reduced disturbances and more sunlight. Some respondents preferred their previous slum settlements due to the "flat structure", which encouraged more interactions with neighbors and developing relationships (Mukherjee & Raut, 2017). Overall, Mukherjee and Raut (2017) found that the SRS projects had negative and positive effects on the host communities.

2.5.2.2 El Menshawy, et al. (2016) on developing affordable housing as a method for sustainable upgrading of informal settlements

El Menshawy, et al. (2016) conducted inductive and deductive research to analyse the relationship between affordable housing and sustainable informal settlement development. For this analysis, they selected a case study of the upgrading of the Narvang settlement in Dharavi, India.

2.5.2.2.1 Defining Affordable Housing

According to El Menshawy, et al. (2016), housing affordability is measured through the relationship between household income and the costs associated with the housing. When housing is not affordable, it causes financial burdens on low-income households, affecting their ability to service essential needs (El Menshawy, et al., 2016). Unaffordable housing also causes urban sprawl, which raises municipal expenditure on providing services and infrastructure (El Menshawy, et al., 2016).

El Menshawy, et al. (2016) identified policies for increasing housing affordability that they described as superior to other policies due to their curtailment of costs rather than redirecting costs to other expenses. The policies El Menshawy, et al. (2016) recommended are the same as those Litman (2022) recommended, and these policies have already been presented in section 2.2.2.3 of this Chapter.

2.5.2.2.2 Narvang Settlement Upgrade Project (Dharavi, India)

El Menshawy, et al. (2016) analysed the application of the affordable housing policies they had identified in the Narvang settlement upgrade project. The analysis for the Narvang settlement is described in the subsections below. Only the policies that had been adopted and their adaptation are highlighted in the analysis.

2.5.2.2.2.1 Building Improvement Design

A "subtract and insert" policy was adopted, which resulted in building improvements in the settlement. Property owners were provided with thirty-square-meter apartments and all the existing rental space was reinstated in the new condominiums. The new housing that was proposed for the settlement also enabled flexibility in the household interior arrangement through the use of partitioning (El Menshawy, et al., 2016). These policies allowed some of the settlement's existing social and economic fabric to remain intact, while improving buildings and basic services (El Menshawy, et al., 2016).

2.5.2.2.2.2 Discouraging rental restrictions

Owners of dwellings in the previous informal settlement were granted ownership of some of the newly developed rental units. The settlement upgrading project resulted in increased rental prices due to the newly built facilities and services (El Menshawy, et al., 2016).

This policy may not be suitable for all slums, so El Menshawy, et al. (2016) identified an alternative option. Developers may be encouraged to give portions of their buildings towards the upgrading program in exchange for land or property in a lucrative economic location (El Menshawy, et al., 2016).

2.5.2.2.2.3 Addressing neighborhood concerns

"Adaptive Spatial Design" was adopted in the architectural and urban design of the project. This allowed housing owners to "extend or contract" their houses during the settlement's lifetime through the use of modular housing units (El Menshawy, et al., 2016). The modular units increased affordability by enabling smaller families to start by purchasing a standard module, then extend their housing units by purchasing another unit and combining them as the family grew. Families could also sell modules to neighbouring households when they required less space (El Menshawy, et al., 2016).

El Menshawy, et al. (2016) found that this strategy increased the affordability and sustainability of housing in the settlement. They also found that it curtailed fears that arose from a common belief by some stakeholders that affordable housing may degrade the value of the surrounding areas with low-quality buildings (El Menshawy, et al., 2016).

The combined modular housing developed for the program is shown on Figure 3 below.

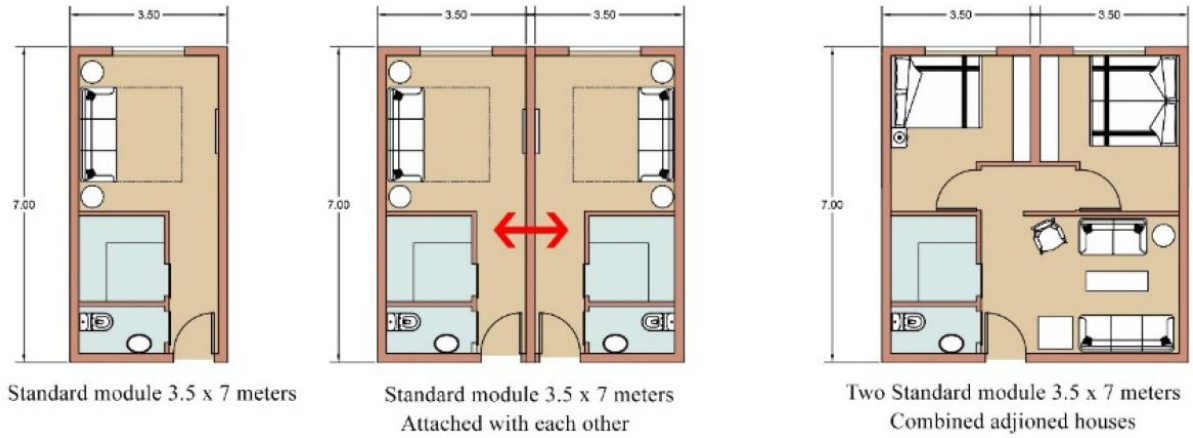


Figure 3: Illustration of the housing modules developed for the Narvang upgrade project (El Menshawy, et al., 2016).

2.5.2.2.2.4 Targeted development fee Discounts

El Menshawy, et al. (2016) identified a policy known as "Cluster Based Replacement" that was adopted in this project. This policy allowed private developers to own 20% of the informal settlement upgrading site. The site would be utilized for the development of commercial and residential property units for re-sale by the developer. This served as an incentive for private developers to upgrade informal settlements (El Menshawy, et al., 2016).

2.5.2.2.3 Conclusion

Overall, El Menshawy, et al. (2016) found that very few of the policies recommended for the development of affordable housing in section 2.2.2 of this chapter were adopted in the project's implementation and noted that adopting could improve the response towards informal settlements.

2.5.3 Funding Strategies

2.5.3.1.1 Government Allocated Funding

In 2001, the Government of India established a housing subsidy scheme for poor households in urban areas known as Valmiki Ambedkar Awas Yojana (VAMBAY) (Mukherjee & Raut, 2017). VAMBAY was also set up to subsidize urban sanitation, and according to Burra, (2005), the funding allocated to the scheme is minimal.

The National Slum Development Program was also established to assist states in providing basic infrastructure in informal settlements. The National Slum Development Program issues grants to state governments for the provision of basic amenities in slums, and Mukherjee & Raut (2017) noted that the insignificant budget allocated to the schemes is usually not utilized.

State subsidized social funding loans have also been established with banking institutions to help the poor generate self-employment opportunities. The government then mandated its Housing and Urban Development Corporation to loan 70% of its funds to low-income groups (Burra, 2005). According to Burra, (2005), the majority of these funds did not reach the poor as they lack the tenure security and financial securities required to access these loans.

2.5.3.1.2 Community Developed Funding Strategies

The Community-Led Infrastructure Finance Facility (CLIFF) was also set up in 2001 to assist NGOs working to implement community-driven infrastructure and housing initiatives (Mukherjee & Raut, 2017). This funding strategy was excellent for pilot community-driven projects that usually have difficulty getting funding due to their explorative nature. CLIFF also provided credit, guarantees, and technical assistance for projects identified and proposed by communities. CLIFF has been very important in making these projects feasible for government subsidies by funding the processes required for scaling up (Mukherjee & Raut, 2017).

A significant portion of the project funding provided by CLIFF is derived from resources and sweat equity provided by low-income households and their community schemes (Burra, 2005). CLIFF, therefore, only exists due to long existing low-income household associations, savings and loan schemes. There are four main areas in which CLIFF aims to assist:

- **Funding pilot and demonstration projects in development**: These projects showcase the capabilities of the poor to create solutions to their own challenges and the city and society at large (Burra, 2005).
- **Funding project scaling**: Scaling up projects often requires significant funding that often cannot be provided by NGOs. The funding for these situations may also be complex, and may require structuring by technical experts. CLIFF provides finance and technical expertise for projects in the scale-up phase. The experts offer finance, technical, procurement, and community contracting tools (Burra, 2005).
- **Funding risk management and reduction**: Long delays are common on projects that are scaling up. Formal lenders generally demand guarantees, making this challenging for low-income slum families. CLIFF provides bridging finance for these delays (Burra, 2005).
- **Funding for education and partnerships**: During the development and scaling process of projects, communities learn how to develop and implement these projects.

CLIFF provides funding for documenting the process and sharing the experience with stakeholders such as municipal officials, NGOs, and technical staff to encourage learning (Burra, 2005).

2.5.3.1.3 Combined Funding Mechanism

To fund projects developed for implementation under the RAY policy, India's MoHUA developed a funding strategy that requires the participation of all stakeholders in the project (MoHUA, 2013). Funding for projects implemented under the RAY policy is obtained from the National government, the State government, Local Municipalities, and the project beneficiaries (MoHUA, 2013). The funding required from the various stakeholders is weighted to account for the economic capacity of the various stakeholders on the project.

For cities, the population and geographical location is used to estimate their economic status. Cities with large populations and weaker economies can apply for special recognition, which reduces their contribution requirements towards the project (MoHUA, 2013). The percentage contribution required from the project beneficiaries is determined through the classification of the city in which they reside (MoHUA, 2013). The funding classifications and percentage contributions to project required from the different stakeholders for the implementation of RAY projects are shown on Table 1 below.

Table 1: Funding mechanism and percentage contributions of stakeholders for implementation of RAY policy projects (MoHUA, 2013).

Category	Type of City	Funding Component	% Contribution			
			National / Federal Government	State Government	Local Authorities	Project Beneficiaries
A	Cities with population >= 500,000	Housing	50%	25%		25%
		Infrastructure	50%	25%	25%	
B	Cities with population < 500,000	Housing	75%	15%		10%
		Infrastructure	75%	15%	10%	
C	North Eastern Cities & Special category states	Housing	80%	10%		10%
		Infrastructure	80%	10%	10%	

2.5.3.1.4 Project funding through private for-profit developers

Another funding strategy used in the Maharashtra State for in-situ upgrading of informal settlements on privately owned land is the Slum Rehabilitation Scheme (SLS) (Burra, 2005). This is a public-private partnership scheme where developers bear the total costs of carrying out the project (Mukherjee & Raut, 2017). The developer gains ownership of the land on which

the settlement is located, and a portion of the land goes to the residents of the settlement. The remainder of the land is used by the developer to construct properties for resale.

An additional incentive is given to developers through a relaxation of the Floor Space Index (FSI), which is the ratio of the total floor area of the building to the land on which it is built. Should a development project require more than the maximum allowable FSI to remain profitable, the developer is issued with a Transfer Development Rights (TDR) certificate that can be used to purchase land from the city without exchanging money (Burra, 2005). TDRs can also be sold to other developers in the market for money (Burra, 2005).

2.6 Literature review conclusion

This chapter has reviewed the literature on informal settlements in South Africa, Brazil, and India. While large volumes of literature on informal settlements have been drafted in these countries, only relevant literature was selected to form part of this research project. Limitations and difficulties were experienced with finding literature on Brazil due to language differences, however the literature that was uncovered is sufficient to develop an understanding of how Brazil responds to informal settlements.

2.7 Literature Interpretation

Drawing on observations made during the literature review process, interventions implemented in informal settlements often differ due to variations in the nature of the settlements. Certain recurring themes in interventions were nonetheless identified in all the selected countries. The recurrence of the themes across the vast geographical locations with different informal settlements indicates their importance in response to the development of informal settlements and affordable housing. The literature reviewed for this research project demonstrates the different approaches adopted for implementing these themes in each country. These themes and their differences are described in Table 2 below:

Table 2: Recurring themes in the responses towards informal settlements adopted in India, Brazil and South Africa and a description of how they are approached in each country.

Theme 1: Public Participation		
South Africa : - Cited as important in legislation and policies, however poorly applied in practice due to a strong focus on constructing new housing units through the RDP Program **(Klug & Vawda, 2009)**. - Evidence of the implementation of this policy was noted in the CoCT, where the city partnered with NGOs and developed a mechanism for identifying needs for informal settlements and then planning the implementation of interventions incrementally **(Klug & Vawda, 2009)** - Evidence of implementation in some informal settlement upgrading projects e.g., in Freedom Square – Mangaung, where households were issued with building settlements to construct their own housing **(Marais, et al., 2018)**.	**Brazil:** - Public participation is cited as important in legislation and policies, and evidence of adherence to these policies is noted in all the papers cited in this chapter. - An instance of government institutions being restructured and "de-centralized" to make them more accessible to the public was noted by Budds, et al. (2005) in Sao Paulo. - However, public participation is ineffectively applied in some instances. Social workers were made available to assist with public participation and integration, however most residents noted that the interventions adopted by the social workers were ineffective in the Favela Bairro relocation project (de Camargo Cavalheiro & Abiko, 2015).	**India:** - Cited as important in legislation and policies and applied in practice. - In informal settlement upgrading projects where dwellings are converted into condominiums and high-rise buildings it is essential for the identification of beneficiaries (Mukherjee & Raut, 2017). - Strong civil society organizations within informal settlements participate in government projects and demonstrate the strengths of community by piloting projects (El Menshawy, et al., 2016). - Communities also provide "sweat equity" in some informal settlement upgrading projects. (El Menshawy, et al., 2016). - Residents of informal settlements can also participate by providing equity in upgrading projects (MoHUA, 2013), which can create a greater sense of ownership.

Theme 2: In-situ Upgrading of Informal Settlements		
South Africa : - Cited as important in legislation and policies, however poorly applied in practice due to a strong focus on the construction of new housing units through the RDP program **(Klug & Vawda, 2009)**. - Some local authorities, e.g., the CoCT, recognise the importance of in-situ upgrading. They have developed frameworks for identifying informal settlements in critical need of services, ranking the severity of the need, and prioritizing their development **(Klug & Vawda, 2009)**. - Venter, et al. (2019) demonstrated how indigenous methods of housing construction can be enhanced to enable informal settlement dwellers to improve their housing units and make them more environmentally sustainable. However, they noted that these indigenous construction methods were not being explored to upgrade informal settlements. - Alternative strategies for upgrading informal settlements were noted as being adopted in the Freedom Square settlement, where the municipality	**Brazil:** - Cited as important in legislation and policies and applied due to progressive land ownership legislation, which requires that all land be utilized for the benefit of society. - After settling on land for five years without complaint, tenure legalization is granted to the settlers, and this aids with the in-situ upgrading process by empowering slum dwellers to improve their own housing (Denaldi & Cardoso, 2021).	**India:** - Cited as important in legislation and policies, and applied in practice (Mukherjee & Raut, 2017). - The practice of using private developers to convert informal settlements located on lucrative land into duplexes or high-rise buildings results in in-situ upgrading of the informal settlement. However, it significantly changes the settlement's layout and nature, and this can sometimes negatively affect livelihoods (Mukherjee & Raut, 2017). - The presence of strong civil society organizations in informal settlements results in the development of pilot informal settlement upgrading projects which demonstrate the abilities of informal settlement dwellers to improve their housing conditions (Burra, 2005).

provided infrastructure and services for the community but stopped short of constructing houses for residents and instead issued them with the construction materials for upgrading their housing structures **(Marais, et al., 2018)**.		
Theme 3: Tenure Legalization		
South Africa : - National Legislation indicates that it is "achieved in principle" **(DHS, 2004)**. However, there are no clearly articulated guidelines and principles on how it has been achieved, leaving provincial and local governments to develop their own policies. - The lack of clarity on tenure legalization adversely affects incremental improvement. In addition, the government's emphasis on the RDP program causes residents of informal settlements to expect relocation, hence likely reducing their desire to invest in their current housing structures.	**Brazil:** - A land ownership progressive National Constitution makes way for tenure legalization. - One policy on granting tenure legalization to residents of informal settlements is followed throughout Brazil (Cardoso & Denaldi, 2019). - The clarity on how informal settlement dwellers achieve ownership of the land on which they are settled results in incremental improvements in informal settlement housing by dwellers due to the security provided through tenure legalization. The government can also invest in the development of infrastructure in these settlements due to the security provided by tenure legalization (Denaldi & Cardoso, 2021).	**India:** - Cited as important in legislation and policies and applied in practice. - A principle similar to Brazil's on how informal settlement dwellers can gain tenure legalization has been adopted. However due to projects requiring upheaval of entire settlements, tensions arise between eligible and ineligible residents of informal settlements (El Menshawy, et al., 2016).

Theme 4: Livelihoods development		
South Africa:	**Brazil:**	**India:**
- Livelihoods development and protection are recognised as important in legislation and policies yet poorly applied in practice. - Many researchers, such as Venter, et al. (2019) and Klug and Vawda (2009), have noted that the government's emphasis on the RDP program, which is entrenched with relocations of households to newly constructed housing units, often results in disruptions to livelihoods of dwellers of these informal settlements. - The relationship between livelihoods development and tenure legalization is confirmed by Marais, et al. (2018), who found that second-generation households who had inherited the household in an upgraded informal settlement reported more wealth than the first-generation beneficiaries.	- Cited as important in legislation and was practiced in the project reviewed for this research project (de Camargo Cavalheiro & Abiko, 2015). - Tenure legalization results in longer-term settlement of households. This results in incremental improvement of the settlement and encourages the development and protection of livelihoods. - In the Favela Bairro relocation project, where residents of the informal settlement were relocated to the Reubens Lara complex, respondents noted that the relocation had resulted in improvements in their livelihoods due to the complex being located within suitable access to economic opportunities (de Camargo Cavalheiro & Abiko, 2015).	- Cited as important in legislation and policies, however the research has indicated poor applications in practice. - Mukherjee and Raut (2017) noted that in an informal settlement upgrading project, residents who were subletting in their previous housing units had been promised additional units to preserve their livelihoods, however the promises were not kept. Residents who also had businesses selling could not continue their business operations due to the changes in the layout of the settlements (Mukherjee & Raut, 2017). - Reconfiguration of settlements into high-rise buildings sometimes results in disruptions to livelihoods.

Theme 5: Private Sector Participation		
South Africa: - Private sector participation in informal settlement upgrading projects often takes the form of the government paying private developers to construct low-cost housing through the RDP program **(Klug & Vawda, 2009)**. - The CoJ recently adopted legislation requiring private developers to incorporate affordable housing units in all new property developments **(CoJ, 2018)**. This legislation will expand the participation of the private sector in the development of affordable housing, which will lead to increased development of affordable housing.	**Brazil:** - In Sao Paulo, the municipality partnered with technical organizations and universities to assist residents through the process of drafting and obtaining municipal approvals for their development and housing plans (Budds, et al., 2005).	**India:** - India has the most innovative policies for attracting public sector participation. When the policy is assessed solely on its ability to encourage private sector participation, it is the most effective policy compared to South Africa and Brazil's policies. - Government has found ways to incentivize private property developers to fund and undertake informal settlement upgrading projects entire while maintaining the profitability of the projects (Mukherjee & Raut, 2017). - The policy is only viable in informal settlements located on lucrative land plots where housing is in high demand, and therefore, developers can recoup expenditure on the free housing through sales of the other units (Mukherjee & Raut, 2017).

3. CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to explain how the research was undertaken. This chapter will also explain the kind of data utilized for the research and how it was collected, reviewed, and analyzed. The chapter describes the overall research approach, the strategy and why it was selected, how data was collected, and how it was analyzed. Limitations encountered in the development of this research are also presented, and the ethical considerations that governed the study are described.

3.2 Research approach and strategy

This research project mainly utilized qualitative research methods recommended by Creswell (2013), namely in-depth semi-structured interviews and field observation. The overall approach of this research study is exploratory, seeking to develop a deeper understanding of how informal settlements are addressed internationally, in Brazil, India, and in South Africa in order to then make recommendations for improvements for South Africa.

Brazil and India were selected as focus countries for finding alternative policies and strategies for this research study. These countries have been selected due to their broad geographic spread from each other, which gives this research project exposure to approaches and strategies adopted in varied parts of the world. Brazil and India are also developing countries whose economic status is comparable to South Africa, making the approaches towards addressing informal settlements employed in these countries potentially economically viable for implementing in South Africa.

Global organizations such as the UN and the World Bank also have units dedicated to addressing informal settlements. These units publish research on informal settlement interventions being undertaken in various countries around the world, and they make recommendations of best practices based on the effectiveness of the different strategies. Literature from these organizations was consulted to identify alternative policies and strategies that may be adopted in South Africa.

In the literature review, research involving legislation and policies, as well as case studies that were unearthed, are used to understand the nature of informal settlements and the responses adopted in South Africa and the other two countries for comparison.

3.2.1 Semi-structured Interviews with Professional Respondents

After uncovering the nature of the informal settlements and the strategies for addressing informal settlements from the literature, a questionnaire (Annexure D) was prepared for conducting one-on-one semi-structured interviews with various professionals from organizations working to address informal settlements in South Africa. The interview respondents were identified and selected strategically to corroborate or dispute the preliminary findings from the literature review on the impact of South Africa's approach towards informal settlements. The questions posed to the respondents were open-ended to obtain information on their experiences. The following constraints were also used to identify respondents:

- The respondents could not be based in one organization as this would skew the research findings towards the organization's priorities and outcomes.
- Respondents could also not be selected from only one type of organization (e.g., selecting only municipal workers or NGO employees) to prevent introducing biases from the different sectors or industries.
- The respondents were required to work directly on projects undertaking interventions in informal settlements and not report on work undertaken by their colleagues.
- The respondents could not be located in one geographical location (e.g. respondents from one province) to avoid skewing the research findings towards the policies and strategies of that particular province or municipality. The professional interview respondents that were selected for this research study were all selected from different provinces that were geographically spread from one another.

Table 3 below describes the career synopsis of the professional interview respondents that were selected for this research study.

Table 3: description of the work experience of the professional interview respondents selected for this study

PROFESSIONAL RESPODENT	CAREER SYNOPSIS
Respondent 1	Respondent 1 is a civil engineer who is a registered professional (Pr. Eng) with the Engineering Council of South Africa. He has 16 years of experience in infrastructure development, 4 of which have been spent serving as an Assistant Director for the Public Housing Programme in a government institution. He describes his job as requiring him to create development plans for informal settlements

	which often require consultation with the communities, settlement planning and infrastructure development. The respondent also manages the development of affordable human settlements to which residents of informal settlements are sometimes relocated.
Respondent 2	Respondent 2 is a civil engineer working as a project co-ordinator in the Human Settlements Unit of a government institution. She holds a masters degree in Sustainable Urban Practice and has over 22 years of experience working with informal settlements. When describing her career, she said she has developed new human settlements to which residents of informal settlement have been relocated, and she has also developed and managed various projects where infrastructure was constructed for residents of informal settlements.
Respondent 3	Professional Respondent 3 is qualified as an Urban Planning professional and she has 12 years' experience working with informal settlements. For the first 10 years of her career, the respondent worked with a Global NGO that addressed informal settlements, and from there she transitioned her career to work as a Project Manager in the human settlements department of a government organization. The respondent described her work experience with both the NGO and the government institution addressing informal settlements and developing affordable human settlements to manage the scourge of informal settlements in her community. While this respondent had transitioned from working in an NGO to working for a government institution, the respondent was requested to respond to the question based on her experience working with the NGO.

3.2.2 Informal Settlement field visit and semi-structured interviews with residents

To further confirm the findings from the semi-structured interviews with professional and the literature, an informal settlement field visit was undertaken. To enhance the robustness of the research and test differences and commonalities that would be noted in the responses of the professional respondents, the informal settlement was selected in a geographical location different from the locations of the professional interview respondents. Semi-structured

interviews (see Annexure D for interview questions) were also undertaken with residents of the informal settlement to confirm observations from the field visit and gather additional information such as state interventions and tenure legalization. A thematic analysis (Creswell, 2013) similar to the analysis carried out at the end of the literature review is then used to analyze the findings and make recommendations.

RESPODENT	CAREER SYNOPSIS
Informal Settlement Resident 1	Informal Settlement Resident 1 was described as one of the community leaders by residents of the informal settlement. He is a 56 year old man who stated that he has lived in the settlement for 5 years, and he works as a security guard at the government hospital which is near the informal settlement.
Informal Settlement Resident 1	Informal Settlement Resident 2 is a foreign national who has lived in the informal settlement for 3 years. She works as a cleaner for households in the nearby community. She is 36 years old and she reported that she has lived in South Africa for 5 years.

3.3 Data Collection

The professional semi-structured interview respondents were identified through the LinkedIn social media platform and all communication was conducted via email and cellphone calls. The professional respondents were sent the questionnaires (see Annexure D) sometime prior to the interview in order for them to prepare. The semi-structured interviews were conducted online using Microsoft Teams. The interviews were approximately 1 hour long and they were recorded for transcription using the Microsoft Teams platform.

An informal settlement (the Mahlakong informal settlement) was visited once from approximately mid-day to mid-afternoon (3-4 hours) to collect field data. A walk around the informal settlement was undertaken in which information such as infrastructure that is available or not available, amenities, and the types of housing structures constructed were viewed. During the site visit, residents of the informal settlement were approached for semi-structured interviews to collect information on the community's cooperation with authorities and tenure status. The semi-structured interviews with the residents were also used to gain an understanding of the social dynamics of the community.

The semi-structured interviews with professional respondents were undertaken prior to the field visit. This was done purposefully to enrich the findings of the field visit and not only make findings based on the literature review, but also to further investigate the information given by the professional interview respondents.

3.3.1 Sampling

As per the observation of Staller (2003), the researcher may purposefully introduce bias in a qualitative study depending on the research aims. However, the aim in this research study was to prevent the introduction of bias by broadening the geographical location of interview respondents and the field visit across various provinces of South Africa.

The three professional respondents identified for the semi-structured interviews were professionals conducting interventions in informal settlements across three of South Africa's provinces: the Gauteng Province, the Western Cape Province, and the KwaZulu Natal Province. Of the professional respondents, two were Civil Engineers managing projects that are interventions in informal settlements on behalf of a government institution. The third professional respondent was a Town Planning professional who had fulfilled a role in an NGO that undertakes informal settlement interventions for 10 years. All the professional respondents selected for the study had served at least four years in the professional role in which they undertook interventions in informal settlements.

The research respondents were asked direct questions (Annexure D) to gain a more comprehensive understanding of the following broad subjects:

- The themes that they perceive their organizations as prioritizing and those which they perceive are neglected and the effects this has on the effectiveness of the interventions.
- Their own and the organizations' perceptions, knowledge of, and receptiveness towards the strategies being used in Brazil or India, or other countries that are not currently used in South Africa.
- The funding strategies their organizations employ to fund their interventions in informal settlements.
- The strategic relationships with other organizations on which they rely to implement their strategy towards informal settlements upgrading.

The residents of the informal settlement selected for interview were selected based on their availability (e.g., one of the residents was collecting water from the communal standpipes, and

the interview was conducted while she was filling her buckets) and the other resident was pointed out as one of the leaders in the settlement by the first respondent. The two residents were male and female, and this was not a deliberate strategy employed by the researcher. One of the residents was also found to be a foreign national, and this presented an opportunity to understand the circumstances that may arise due to their foreign status for the resident while living in the community.

The purpose of undertaking interviews with residents of the informal settlement was to understand observations that were being made about the community during the field visit. Residents of the informal settlement were also asked direct questions (Annexure D) to understand the following:

- The interventions that have been implemented within the informal settlement and the organizations that are undertaking the interventions.
- Their interactions with external organization, whether it be NGOs, religious organizations, or state institutions.
- The issues they perceive as most important that need addressing in their community e.g. infrastructure provision.

According to Staller (2003), in a qualitative study, the purpose of the study determines the sample size, and it is not predetermined. Qualitative studies aim to develop a comprehensive understanding of the subject through purposefully selecting information-rich sources. Unlike quantitative studies, in which a representative sample size must be obtained, qualitative studies emphasize the strategy employed by the researcher to identify the most suitable sources and the quality of information obtained from respondents (Staller, 2023).

The sample size of this study comprised of four out of nine provinces in South Africa. Of the four selected provinces, three are the biggest economic centers in the country, and these three provinces also contain the largest concentrations of informal settlements in South Africa (Mail & Guardian, 2023). To ensure that the respondents selected for this study were information rich, the professional respondents were all required to have a minimum of 4 years working directly in interventions to address informal settlements and develop affordable housing. To ensure the information gathered from settlement was correct, two residents of the settlement were interviewed, and evidence was sought during the visit to confirm the information reported during the interviews. The second informal resident interviewed was pointed out as one of the

community leaders by the first resident, and the surveillance walk was carried out within the informal settlement with the community leader responding to questions on observations being made during the field visit.

3.3.2 Data interpretation and analysis

Before undertaking an analysis, the responses received from the respondents were categorized according to the common themes that were noted a recurring in order to develop the findings of the research study (Szajnfarber & Gralla, 2017). The findings from the responses were also interrogated by seeking evidence that may confirm or contradict what was being reported. Cross-referencing of the findings was done to confirm or refute their validity against information gathered from the literature review, the other professional respondents, and from the field visit.

The analysis done for this study is mainly comparative. Comparisons are made between policy prescriptions and the priorities of the organizations in which the respondents are employed to determine alignments or misalignments. The study also sought to determine differences between the interventions being prioritized for implementation in South Africa, and those undertaken in the other countries. Where opportunities for improvement in South Africa's response towards informal settlements and affordable housing development were noted, these were highlighted and recommended for further study and potential implementing.

The study ends with an analysis of the findings, which is presented in Chapter 5, where recommendations of policies and strategies that may improve the impact of South Africa's response to informal settlements and affordable housing development if adopted are made. The analysis avoids making firm recommendations that policies and practices should be adopted. Instead, this study recommends further investigation into how the policies that could potentially improve South Africa's response to informal settlements may be implemented. This is due to the social and economic complexities associated with policy prescriptions, which this research study was not aimed at investigating.

3.4 Research Ethics

Research ethics were taken into consideration in this study. Prior to the commencement of the semi-structured interviews and the field visit, ethical clearance was sought and obtained from the Wits University Ethics Committee (Annexure A).

All participants in the study were informed that their participation was voluntary and that they or the organizations in which they work would not be identified in the final research report. No

monetary incentives or payments were given to any of the interview respondents (Annexure B and C).

Sensitivity was also applied when conducting the field visit and interviews in the informal settlement. Respondents were informed that this research study is not being conducted to undertake interventions in their settlement to prevent the creation of expectations. While the research questionnaire was compiled in English, the researcher translated for one study participant as the participant did not speak English. The researcher objectively translated the respondent's responses.

3.5 Research Limitations

There were some limitations encountered in the research process. However, these limitations do not compromise the outcomes of this research study. The following are the known limitations encountered during the development of this research study:

- **The study sample size:** Most engineering studies are quantitative and qualitative studies within the engineering field few (Szajnfarber & Gralla, 2017). Quantitative studies rely on a representative sample size in order to obtain results that hold statistical significance. For qualitative studies however, the sample sizes are selected strategically to diversify the responses to enable comparison. The research methodology for undertaking qualitative studies is well defined in social sciences by researchers such as Creswell (2013) and Staller (2023), and these methodologies have been adopted to aid this qualitative engineering study.

  In the case of this qualitative engineering study, only three professional respondents who work in organizations that address informal settlements were approached, and a field visit was carried out to one informal settlement. To supplement the sample size, this study selected participants across a broad geographical area of South Africa in order to generate diverse responses and balance the need for a large number of interview respondents to be approached. Additionally, the informal settlement selected for the field visit was in a different province to the provinces of the professional interview respondents, and this also added to the diversity of the findings of the study.

- **Data integrity**: The professional respondents in the study were asked to respond to the interview questions from the perspectives of their organization's policies. However, occasionally, deviations were noted where respondents stated their personal opinions.

These were viewed as opportunities for this qualitative study to develop richer information as the opinions of these professionals are formed from the outcomes of their work and the areas they believe could present improvements.

- **Technology failures:** Consent was sought for audio recordings of the discussions with respondents. Due to technological challenges, the interview with the respondent serving a professional role in the NGO was not recorded, and this was discovered immediately after the completion of the interview. The interviewer's recollection of the responses was immediately typed under each question to avoid losing the information. These typed responses were shared with the respondent to review them and confirm that they were aligned with the responses she gave during the interview. Therefore, the research findings may not contain many direct quotations from this respondent, however, the broader theme of the responses by the respondent is captured in the results and the analysis.

- **Language barriers:** The questionnaires for residents of the informal settlement were typed and presented in English. However, one of the respondents was not proficient in English, and a translation was done for him in the local Sepedi dialect. His responses to the questionnaire were also in Sepedi, and they were translated into English for interpretation and analysis.

3.6 Conclusion

This chapter has described the research methods used to develop and undertake this study. The strategies employed to broaden the research across South Africa and ensure that the findings are representative of the issues affecting informal settlements across the country are also described. The comparative analysis method utilized for this study is also described, as well as the constraints encountered while developing this report.

4. CHAPTER 4: RESEARCH FINDINGS

4.1 Introduction

This chapter presents the findings of the research study. The chapter begins by detailing the findings from the semi-structured interviews with professionals serving roles that directly address informal settlements in South Africa. The findings from semi-structured interviews with residents of an informal settlement, the Mahlakong informal settlement in Lephalale, are also presented in the chapter. The chapter concludes by detailing the observations from the field visit to the informal settlement.

The findings reveal some standard practices adopted by different institutions addressing informal settlements in South Africa. Most of the findings reveal an adherence to processes prescribed in legislation by different government institutions and non-governmental organizations (NGOs). The findings also reveal differences in inclination towards implementing certain policies across the governmental institutions, and this has led to some provinces being in the commencement stages of implementing strategies that have already been adopted in other provinces. The findings also reveal innovative solutions being explored within certain jurisdictions in the development of infrastructure, settlement layout, and housing structures. Regarding residents of informal settlements, the findings reveal their ability to organize as a community, the methods through which they interact with the state, and their ability to develop their own sustainable solutions to a lack of infrastructure.

Readers should note that the aim of this chapter is not to undertake an analysis of the findings. In the chapter, the researcher will present the findings and the analysis and commentary of the findings is presented in Chapter 5.

4.2 Findings from Semi-Structured Interviews with professionals in roles that address informal settlements in South Africa

The findings from these semi-structured interviews have been grouped into themes that allow the responses from the different groups of respondents to be compared against each other to identify trends and differences.

4.2.1 Informal Settlement Upgrading

The first question asked to all the professional research respondents was regarding the most important strategy practiced by their organization towards addressing informal settlements:

Question: *"What is the most important strategy that has been adopted by your organization towards addressing informal settlements"*

In response to this question, all the professional respondents revealed that in-situ upgrading is accepted as the most important strategy within their employment organizations. Professional Respondent 1 expressed an understanding that informal settlements tend to develop in a particular location for reasons such as ease of access to livelihood opportunities, educational opportunities, and transportation. The respondent also highlighted the economic and social ills that can affect informal settlement communities during re-location.

> *"If the settlement is upgradable in-situ, that's first price, because settlements don't just develop out of nowhere, they develop in an area for the specific reason: it's either the area is close to opportunities or close to transport routes or close to families or close to schools, whatever… So, people that live in a certain area aren't just there by some mystery. There's always something motivating them to be there. So, you want to keep them there if possible, because you don't now want to solve the problem of accommodation but give them the problem of increased transport costs or distance from services and those kinds of things. So, first prize is always to upgrade in-situ.*

The Respondent 2 stated the following regarding in-situ upgrading:

> *"Well, look, historically the focus has been on delivery of low-cost housing. The institution took a decision, quite a number of years ago, before I started working here, and I've been here since 2014, that the best way to deliver low-cost housing is to actually do in-situ upgrading. So, most of the housing projects, something like I would say 70% or 80% of our housing projects are actually on the sites of existing informal settlements."*

Respondent 3, who had been employed by an NGO, reported that the organization's purpose was to upgrade informal settlement in situ. The primary role played by the respondent in the organization was layout planning of the settlement, commonly referred to as "re-blocking". This is a process that is undertaken during in situ upgrading of an informal settlement. The respondent indicated the following regarding the organization's strategic focus:

> *"the major focus when working with informal settlements was on re-blocking the settlement. Re-blocking was sort of re-designing the layout of the settlement to enable the construction of infrastructure within the community. When re-blocking is done, it paves the way for the development of infrastructure such as water and sewage pipes for example. The*

re-blocking also makes way for services to be able to come into the community such as fire trucks during fire situations, and refuse collection."

4.2.2 Recognition of different types of Informal Settlements

4.2.2.1 Illegally / informally occupied inner city buildings

The interview questionnaire probed whether the government institutions employing the professional respondents recognize different kinds of informal settlements based on structural characteristics, e.g., informally / illegally occupied multi-storey buildings versus shack slums.

The professional interview respondents were asked the following question:

Question: *"What are the kinds of informal settlements that are recognized by your organization? Does your organization recognize inner city high-rise buildings as informal settlements when they are illegally occupied or when they are occupied but deemed unsafe by housing authorities?"*

Both respondents serving roles in government institutions stated that illegally occupied multi-storey buildings are not recognized as informal settlements within their institutions due to a lack of recognition in legislation. The respondents indicated that only the typically shack-structured settlements are recognized as informal settlements and that categorizations have been developed for these types of settlements within their organizations.

Respondent 1 firmly stated that illegally occupied multi-storey buildings are not recognized as informal settlements by the institution in which he works:

"we don't recognize squatted buildings as informal settlements, so those are not included in any of our informal settlement numbers."

Respondent 2 also responded that multi-storey buildings occupied illegally are not recognized as informal settlements in their jurisdiction. The respondent also stated that there is no national guiding policy or legislation that can be used to determine if an illegally occupied multi-storey building can be classified as an informal settlement:

"So we don't have different categories for vertical settlements, if I can call them that, because of that question of how do we classify? Is it an informal settlement? Is it an inner city slum? Is it a hijacked building where people have got informal rental agreements with certain people? You know, we don't have that guideline that guides us as an agency or at a national level that says that this one is a slum, these people are vulnerable, we need to

formalize their housing. This one is an illegal rental, call the police. This is informal settlement, let's see how we link them to a program, we don't have that criteria."

In both government institutions, while illegally occupied multi-storey buildings may not be recognized as informal settlements, the professional respondents indicated that there are strategies the institutions have developed to address them, especially in the Central Business Districts (CBDs), which are often characterized by high-rise buildings.

Respondent 2 noted that the government institution that employes her has a program for addressing dilapidated buildings in the city:

"We have something called a "bad buildings program" which basically addresses the CBD the more urban nodes, but we don't recognize squatted buildings as informal settlements"

Respondent 3 indicated that in her time with the NGO she only ever worked in the typically shack-structured settlements as these are what are recognized as informal settlements in South Africa.

4.2.2.2 Informal settlements characterized by shack structures

Both professional respondents from government institutions stated that settlements characterized by shack dwellings are recognized in the legislation and within their institutions as informal settlements.

Respondent 1, after stating that the organization does not recognize the illegally occupied inner city buildings as "*vertical slums*," was asked if the institution only recognizes communities typically comprised of shacks structures as informal settlements responded:

"Traditionally, the ones that I know, yes."

After categorically stating that inner city buildings are not recognized as informal settlements, Respondent 2 gave a detailed description of the classifications of shack built informal settlements as described in the legislation.

"Category A are those settlements that are on their way to being formalized. Then we've got B1, which is the settlements that are well located, but there's currently no funding or capacity to develop housing projects. So that's really where the focus for incremental services is. And B2 is where the people living there are not in immediate danger, but it's not an ideal location for human settlements. And there's the category C settlements, which are the ones that are really in floodplains, really vulnerable."

The respondent also identified additional approaches used to classify the different informal settlements:

> *"…. those are the ways that we differentiate between the settlements at an administrative level, but on the ground, there's so much difference. I mean, you'll find your perry-urban settlements that are much more spread out, people have some space. There are some settlements where the communities really have this community leadership that's very established and they have a lot of control over who lives there, who can move in, who can build, and then you have other settlements that are just like Wildlands. There's no organized leadership. People are afraid of stopping land invaders…"*

4.2.3 Informal settlements prioritization

The professional interview respondents were asked the following question to determine if their organization has a systemic method of prioritizing the settlements for intervention:

Question: *"How does your organization prioritize the informal settlements that require interventions? For Example, how do you determine that settlement A requires urgent intervention, and settlement B is not a priority and will require intervention in the long term?"*

Respondent 1 pointed this study towards the National Housing Code (NHC) of 2009 and stated that it is the practical policy document applied in upgrading informal settlements. The NHC describes a four-stage process through which informal settlements are upgraded. Figure 4 below illustrates the four phases of an informal settlement upgrading project described in the NHC (DHS, 2009).

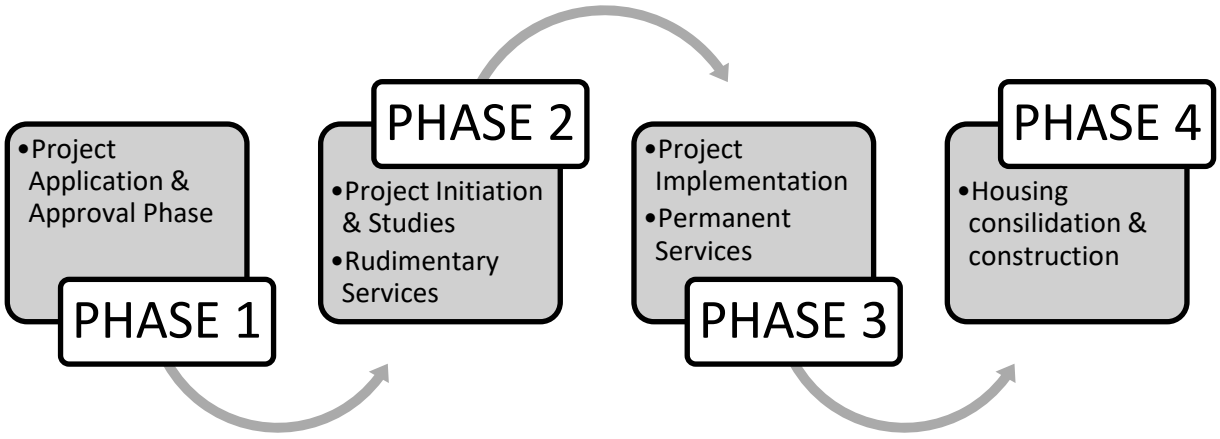


Figure 4: Phases of informal settlement upgrading projects as presented in the National Housing Code

Respondent 1 emphasized that while the BNG remains a crucial piece of legislation when it comes to addressing informal settlements, the NHC is the more practical legislation. Informal settlement upgrading projects are implemented in accordance with the process laid out in this legislation.

Respondent 1 also highlighted that the Phase 1 report is used to prioritize informal settlements and determine the ones in need of urgent interventions as described by the professional respondent below:

> *"So the Phase 1 report will tell you that. Which ones need to be addressed urgently? You have a bit of a timeline, but also the report is like a point in time…"*

Respondent 1 also highlighted a critical factor in the prioritization of informal settlements: the dynamic nature of the settlements and how certain circumstances can arise with time that may affect the prioritization of settlements.

> *…but also the report is like a point in time. The communities develop. So something that wasn't urgent, it has now become urgent or something that you know was urgent is actually not so urgent, depending on the communities. So, you take that on advisement, but constant engagement with your counselors and your community leadership is what determines how things are going."*

> *"….Technically, it's easy to decide what's urgent what's not, but you'll find maybe there's a fire, and suddenly now it because more important, or there's a piece of land that we reserved to upgrade, but now there is risk of being invaded. So it's better that we act now and secure that land before. So it's dynamic."*

The respondent also highlighted that there is room to exercise human and professional judgment in determining the projects to prioritize. This is largely based on the project's prospects for success, a judgment made by the project manager. This may also be affected by other factors, such as the source of funding and conditions associated with the funding.

> *"…and when it comes to informal settlements, you as an official will have your area that you are assigned to and it's up to you to select project that you think can be pursued. And everybody has their own criteria, but there's also criteria that comes from the National Government because you're working with a grant and this grant has got grant conditions and framework and all those things. So, in the end, you must account to, national who gives*

you the grant and you have to ensure that you've complied with the grant conditions. From our side, what we try to do is to select projects that we see as having good prospects of being successful."

Respondent 2 stated that they also use the NHC legislation classifications to identify the informal settlements in which to intervene:

"We use the NHC classifications, for example category C settlements are a priority because they are really vulnerable"

Respondent 3 responded that her organization primarily worked with informal settlements that could be upgraded and relied on the municipality to assist with identification of the settlements.

"When we were doing our planning, there would be certain parts of the scope that would need to be done by the government, so we need to know who we should contact within the municipality and request them to plan for that work as well. We even worked together when the city was budgeting to make sure that they would have the funds budgeted to do their part of the work on the projects we were working on."

4.2.4 Infrastructure and services provision

All the interview respondents were asked the following question regarding the provision of infrastructure:

Question: *"How do you determine the infrastructure that is required in the different settlements? How do you undertake the process of implementing the infrastructure"*

All the professional interview respondents noted that basic services are implemented incrementally in most cases where informal settlements are located in accordance with the process described in the NHC. This process was also observed during the field visit to the Mahlakong informal settlement conducted for this study. A detailed description of the infrastructure that has been constructed in the Mahlakong Informal Settlement will be described in Section 4.3 of this report.

Respondent 1 again referred back to the NHC process and indicated that his organization follows the process described in the NHC to identify the infrastructure required in each informal settlement.

Respondent 2 also responded that her organization follows the incremental process described in the NHC:

"We've been delivering basic services initially just in the form of standpipes. But now, a much more comprehensive incremental upgrading program tied with the NHC focuses on delivering basic services, water sanitation, prepaid electricity, access via footpaths and roads, refuse management and basic stormwater controls. We've been delivering some elements of those since the 90s."

Notable successes in providing basic infrastructure such as water, electricity, and sanitation were also highlighted by Respondent 2:

"We've rolled out quite a number of incremental services, and you'll find that more than half of the households in informal settlements in our jurisdiction now have access to a toilet within, I think, it's within 50 meters. They have prepaid electricity- it's more than 50%. They have weekly waste collection- I'd say it's about 80% of the settlements. So, we are making some progress in terms of those basic services. We've made a lot of progress."

Respondent 3 reported that the NGO she worked for does not develop infrastructure but works with the local authorities to develop infrastructure in the communities where the organization is undertaking upgrading projects. While the organization does not directly undertake work in the development of infrastructure, some of their work assists authorities with the provision of infrastructure as the respondent described below:

"The mapping would assist with the process of re-blocking, and it also assisted with the identification of the kinds of services and infrastructure that was lacking. In some instances, for example, where most of the toilets are near the roads, which makes them not accessible at night for some of the households within the community, these community members are able to use the GIS maps that we would develop for them to motivate for construction of the infrastructure to the authorities. What will happen in these cases is that the city's records will indicate that toilets have been constructed in these communities, so it would not be in the city's radar to build toilets for them. But with the map, the community can approach the city and demonstrate the problem with the location of the available toilets, then to show the city that additional toilets are still required in certain areas."

Respondent 3 also revealed a mutually beneficial relationship between the government and the NGO which bolstered the government's ability to provide infrastructure in these communities. When describing the reliance of the NGO on the local government institution for the development of infrastructure and provision of services, Respondent 3 stated the following:

"The relationship between us and the city was more of a partnership. Actually, a lot of the work we did for the community was done through partnering with the municipality. For some of our work, we would get some approvals, for our research, or some of the services that needed to be given to the settlements can only be given by the municipality, so as an official from [NGO Name] I interacted a lot with the city."

4.2.5 Tenure legalization

The professional interview respondents were also asked the following question regarding tenure legalization?

Question: *"What are the forms of tenure that your organization uses to grant residents of informal settlements security or tenure?"*

The two government-employed professional respondents, Respondents 1 and 2 provided differing opinions.

Respondent 1 stated that full title is currently the only recognized tenure arrangement in South African legislation:

"Our only tenure mechanism is full title deeds at the moment."

Respondent 1 also noted that the institution is exploring alternatives to grant tenure security to residents of informal settlements within its jurisdiction:

"So, one of the things that we're looking at now is alternative means of tenure. We're trying to introduce this year, some kind of municipal register of occupation. So that's at least something that gives people some tenure security but avoids all those administrative processes that you have to go through to get to a full title deed."

Respondent 2 stated that temporary tenure arrangements are available within their jurisdiction, and these are made available to residents of informal settlements while awaiting full tenure or relocation. While describing the incremental nature of informal settlement upgrading as prescribed in the National Housing Code (DHS, 2009), the respondent also described tenure legalization as an "incremental" process.

"Yeah, so everything is incremental, even the tenure could be incremental. It could be an occupation permit. Because if you're saying that we're going to upgrade this settlement up to a certain phase for now. In the future, we may have to resettle you, we may relocate you and once you own that piece of land and it's your title deed, we can't do that anymore. So,

there is a mechanism to say that the city will give you a temporary tenure. That document will certified and stamped by the municipality. You can use it to put your kids into nearby schools, you can use it to open a bank account, you can use it as a proof of residence if you want to."

Both government-employed professional respondents recognized that certain conditions, such as settlements in environmentally precarious locations, can affect tenure legalization and result in resettlement. The government-employed professional respondents also noted that the density of settlements often poses a challenge to tenure legalization. South African legislation prescribes certain minimums to guide the upgrading of informal settlements, such as minimum land and housing unit size. In dense settlements, this may result in limitations to upgrading. Respondent 2 described a policy within their institution that can be used to negotiate relaxations to the prescribed legislated minimums:

"It recognizes that you are in phase two, so you are between formalized township and informal settlement. And because of densities and other things on the ground, you are allowed to relax some of the conditions that land use would normally look at. So, if land use scheme is saying that we want a minimal stand size of 200 square meters, and you're saying that the best we can do is 100 because of the density and people don't want to move and all those things, they should allow that in theory."

Respondent 1 also described a similar process within his institution.

Respondent 3 indicated that her organization would partner with the municipality to provide tenure security through full title in an informal settlement before undertaking the upgrading process.

4.2.6 Community engagement

All the professional interview respondents were asked questions regarding the importance of community engagement in their organizations processes:

Question*: "How important is public participation, especially of the affected communities in the processes that you adopt to intervene in informal settlements?"*

The two respondents serving roles in government institutions noted the importance of public participation in the in-situ upgrading process. They stated that obtaining approval from the community is one of the most crucial requirements for undertaking an informal settlement

upgrading project. Both respondents described a process of interacting with the community via a "Project Steering Committee," which is a group within the project comprised of community members, the project leaders, and area officials (e.g., ward committee members) who look after the interest of all the stakeholders on the project.

Respondent 1, when describing the phases of upgrading an informal settlement, highlighted the importance of public participation in the process as below:

> *"…and then, phase two, then you start doing detailed work. You actually go to the ground, do your test pits, do the environmental, and do your traffic counts, do the community involvement, do a layout with the community and the community must sign the layout to say that they accepted it. Before you can submit it, the community must have signed it!*
>
> *So if the community say we're prepared to move to allow for more toilets cause that's more important, then you do that. If they say no, we're not prepared to move, give us more communal services and we're fine. So you always consult them and then you kind of design as you go with the community because end of the day the community has to accept those services. If they reject them, you've just wasted a whole lot of money. So phase two is more consulting with the community, advising them on what's possible and then they will tell you what they feel about all those options. And they might say, yes, we're prepared to move or no one is prepared to move or we're prepared to have smaller stand sizes to make this development possible, whatever the situation is."*

Respondent 1 also indicated a relationship with the community characterized by the community's demands being heard, and the official taking the responsibility of determining whether the demands can be met, or advising them on suitable alternatives.

> *"Communities just need to be educated, you know. They don't like this top-down approach of we're coming to do X&Y. They want to be involved in every step of the way to understand what you're doing, what it means, and all those things. Once the community is active and you see how, like during the public meetings, there's more and more people and that kind of stuff, then your project will go well. And you never dictate to them, they dictate to you almost. You, just tell them what you're saying is not possible or is it possible but can you consider this, so you play an advisory role to the community between you, and the counselor, and the Project Support Committee."*

Respondent 2 described a process similar to the one highlighted by Respondent 1 for looking after the interests of all stakeholders in the project.

> *"Usually what we do is we establish something called a Project Steering Committee. The Project Steering Committee will have not only officials but also community leadership and members of the Ward Committee on it. And between them they'll agree on a process of identifying who get the houses versus who will be relocated. So, it might be negotiated house for house, it might be that some people need to be relocated temporarily to make way for the structures and then brought back. There's a number of different things that can be negotiated, but that will be dealt with on a project-by-project basis"*

Respondent 3, who had been employed by an NGO, described the broad mandate of the organization when it comes to community engagement. The NGO undertakes the following activities within the community which assist the community to engage with the state:

- The organization assists communities to develop leadership structures that interact with the state and other organizations on behalf of the community.

  "…we would actually assist the communities with developing leadership structures. Having community leaders makes it easier to engage with the authorities because the community is able to have representatives and it's not just everyone asking for different things. The authorities can also give a message to the community through the leaders, for example options that they can chose from for executing the project."

- The organization assists communities with profiling the settlement and developing settlement plans through GIS mapping. The maps developed with the community are either issued to the community to aid in negotiating for government-funded in situ upgrading projects, or used by the NGO to apply for donor funding to develop the settlement where feasible. The organization would also assist communities to negotiate for services and infrastructure provision with local officials.

- The organization assisted communities with developing "community savings" to empower them to undertake their own improvement initiatives, such as gardening.

  "…the community members are also encouraged to contribute to ensure their buy-in to the projects as well as the work the organization is undertaking. So, it's not only a way to make them "participants" but really make them stakeholders who are involved in the funding, the construction of the project, then they ultimately become beneficiaries."

4.2.7 Administrative innovation and openness to the adoption of new strategies

4.2.7.1 Infrastructure & Housing Innovation

All the professional interview respondents were asked the following question:

Question: *"What innovative new changes have you seen underway in your organization or in other organizations within South Africa in the response towards informal settlements?"*

Respondent 2 highlighted an innovative infrastructure project pioneered by a metropolitan municipality within South Africa. The municipality converts shipping containers into water collection points and community sanitation facilities. The project was so innovative that in 2014, it won the municipality the Stockholm Industry Water Award for the "Most innovative and progressive water utility in Africa" (Vuk'uzenzele, 2015).

Figure 5 below shows a picture of one of the communal ablution blocks constructed within an informal settlement by the municipality.



Figure 5: Picture of communal ablution blocks pioneered by a metropolitan municipality within South Africa (Metropolis, 2014)

The respondent described the communal ablution blocks as indicated below:

> *"They're called communal ablution facilities, or modular ablution facilities, and they usually come in pairs. You have one for men and one for women. They each have three or four toilets, and two showers and some hand basins, and then they should also have a grey water disposal facility, not all of them have that.*

They have been rolled out since around the year 2000. And they do offer quite a high level of service compared to what the other metros are offering in terms of either portable chemical toilets, or in many cases even still the bucket system."

However, the interview respondent went on to describe how the innovation had not been implemented sustainably, which resulted in it negatively affecting the municipality. The respondent also described the disadvantages that result from the communal ablution facilities being utilized by large sections of the community:

"But they're very expensive for the municipality to deliver, and not only the initial setup is expensive, but the maintenance costs are very high. So those cabs only last somewhere between three and five years and then they have to be substantially upgraded. And unfortunately, as successful as that program has been on the ground, it has basically bankrupted the water and sanitation department of [name] municipality.

So they're looking now for new models on how to deliver sanitation services in Informal settlements. The other thing is they've tended to place them only on the periphery of the segments. So, they place them next to the road and sometimes if the settlement is large, or steep, you'll find people needing to walk for 15 or 20 minutes to get to their cab, and sometimes in the dark women and children are afraid to use them. You'll find homeless people sleeping in some of them at night. So, there's a program where they each have a caretaker from the community. These caretakers deal with their responsibilities differently. Some caretakers keep the carbs locked, and you have to go to the caretaker's house and ask for the key, others leave them open all the time and they get vandalized.

So although, as I say, it's been quite successful compared to the programs of other metros, it's still not really an ideal program. And to me it's partly because it's too much of a shared facility, so if you share a toilet between maybe four or six households, my take is that each household is more likely to want to contribute towards keeping that toilet safe and functional. Whereas when you have 50 households or 75 households or even 100 households using one facility, the facility is overused and often then, the maintenance costs are much higher because people are not really taking any ownership over keeping those things functional."

Respondent 2 also highlighted innovation in the design and layout of permanent housing structures constructed in informal settlements. According to the respondent, the government-

constructed affordable housing units in South Africa are now referred to as Integrated Residential Development Program (IRDP) houses, an upgrade from the RDP houses they were previously called, and they have mostly been comprised of single-storey units on a land plot. The respondent referred the study to the *Cornubia* human settlements project in which the housing units were double-storied and clustered.

Figure 6 below shows the commonly seen design of IRDP housing units, and Figure 7 shows the double-storey housing structures constructed in the Cornubia human settlements project.



Figure 6: The commonly seen design of IRDP housing settlements in South Africa (polity, 2017).



Figure 7: Cornubia human settlements project with double storey IRDP housing units (SABC, 2019).

The respondent described the innovative nature of the settlement layout and housing structures of the Cornubia project as quoted below:

> *"And you were mentioning BNG, we now talk about BNG houses or IRDP, which is the Integrated Residential Development Program. So, traditionally, it's been 40 square meters on a single plot. Cornubia was one of the first projects to go for a much higher density than that. It's semi-detached units. Each one is 50 square meters, so it's a double-storey. On the bottom you have your open plan, lounge, kitchen, and a bathroom, and then you have a little stairwell, and you have two bedrooms upstairs. The reason it's 50 square meters instead of 40 is because the stairwell takes some space, so it actually gives people the same amount of living area and it gets the density up to, I believe, around 200 dwelling units per hectare."*

Respondent 3 also responded that innovation initiatives were frequently underway on the projects being undertaken by the NGO:

> *"There was quite a lot of innovation going into the informal settlement upgrading projects. This was not only on the housing, but even with community skills development. There was for example, the construction of modular housing units and a modular community center*

on one of my projects. There were also housing units that were being constructed using sandbags, or recycled tyres. This was very helpful when it comes to insulation, and the houses would not look like shacks but look much better. I have also been involved in projects where we have installed solar geysers."

All two government employed respondents revealed limited development of multi-storey buildings in informal settlement upgrading projects. Respondent 1 highlighted a challenge with developing multi-storey human settlements as quoted below:

"We have also done one project so far which has been three stories, three units stacked on top of each other in blocks like a conventional block of flats. So, you would have either 6 or 12 units per block, depending on whether there's one staircase or two. But the issue that we have with those higher densities is as soon as you have communal areas, so you have a common roof, a common staircase, you might have a stairwell that needs light bulbs. Your storm water drains will be servicing the whole block, that requires sectional title and where there is sectional title, there's supposed to be a body corporate and levies. And there's a lot of unanswered questions about whether the poor people can organize themselves into Body Corporates, have the capacity to manage the buildings, and whether paying levies is something that's even affordable to people who are earning less than R3500 per month per household because those are the beneficiaries."

4.2.7.2 Policy Innovation

The two professional respondents serving roles in government institutions were asked whether some of the policies unearthed in the literature review would be suitable for adoption in South Africa. The respondents were asked about the land ownership policies in Brazil, which grant informal settlement residents ownership following five years of settlement on the land without contestation. Both responded negatively to the legislation, and they cited South African legislation that would oppose the adoption of such a policy.

Respondent 1 gave the response noted below:

"I don't know if our planning legislation would allow you to. You see, we can't get a plan passed that doesn't have vehicular access to each unit. Our only tenure mechanism is full title deeds at the moment. The one that's commonly used to get to title, you have to go through Township establishment and then you have to meet planning regulations where every unit has to have vehicular access. It can't be too steep, it can't be a minimum size. So,

you can't give somebody the rights to their three meter by three meter plot in the middle of a landlocked area."

Respondent 2 also cited legislation that would pose challenges to the adoption of this policy, as quoted below:

"I think one of our biggest challenges is our Constitution. Our Constitution is very good in some ways, but it was almost designed in a best-case scenario. It was never envisioned that we would have to evict Africans off land. And I think it's now coming back to harm us in some ways because we cannot, I think it's Section25, we cannot force people to give us their land. Right, even though there's a mechanism to expropriate. And I think that there's just no will to expropriate, and there are lot of private, I'm going to call them entities that are all too willing to take state agencies to court to fight for these things. And that's one of the biggest problems."

The government employed professional interview respondents were also asked about strategies their institution are adopting to encourage private-sector developers to invest in the construction of affordable human settlements. The strategies adopted in India of granting additional Floor Area Ratios for housing units and Transferable Development Rights to purchase alternative land parcels from the municipality in exchange for the construction of affordable human settlements were cited as examples of policies that the institution could develop. Both or them again firmly asserted that such a strategy would not be suitable in South Africa.

Respondent 1 responded as quoted below:

"As I say, it's not really applicable within the housing code, where we are giving title deeds to poor people because of the issues of body corporates and land ownership. Private developers here are aiming for much higher markets. The products that they develop, and any building with a lift in it is going to have very high maintenance costs.

And as I say, the fact that most people don't have any title to trade. I was in Malaysia a couple of years ago and I was looking at what they were calling slum upgrading there, and they would buy, say 2000 slum houses. A private developer buy say yeah, 200, 300, 1000 slum houses and build these enormous blocks of flats and the people who lived in the slum houses would get flats and a certain amount of money.

But here those kinds of models don't work because they the slum residents don't own the land that they live on, so they have nothing to transfer. They have nothing to bargain with the private developers."

4.2.8 Funding for informal settlement interventions

All the professional respondents approached for the study were asked questions regarding the funding mechanism their organizations adopt for informal settlement interventions.

Questions*: "What are the mechanisms that your organization uses to obtain funds for interventions in informal settlements and affordable human settlement development?"*

Respondents 1 and 2 indicated that as their organizations are government institutions, the only funding they get towards informal settlements are government grants. The respondents cited various grants from different levels of government in South Africa.

Respondent 1 responded as follows regarding the funding sources:

"So, you'll get a grant from national, and the grant is meant to supplement your own spending. So, if for example you need R500 million and the grant is giving you R400 million, the city is empowered enough to use their own CapEx. It's just that, they don't always do that because the demands of the city outweigh the budget of the city, so they don't often use CapEx, but you can also supplement with other grants, like the Neighborhood Partnership grant, HSDG for top structures, USDG for services, so you can augment with that."

Respondent 2 also indicated that the only source of funding for informal settlement upgrading interventions are government grants:

"Now the funding sources are separate. So, we use HSG, the human Settlements development grant to build houses, and that comes from province. To give you an idea of the financial constraints were facing, our budget for this financial year 2023 608 million for new housing developments, next year it's 280 million."

Both government employed respondents highlighted funding constraints from the government grants.

4.2.8.1 Private sector funding

All the interview respondents were asked questions regarding how their organization encourage private sector participants to fund informal settlement upgrading interventions, or affordable human settlements development interventions.

The government employed respondents highlighted that there is no interest from private sector participants to fund informal settlement upgrading interventions. The Inclusionary Housing Policy adopted by the City of Johannesburg in 2020 (COJ, 2020) was used to probe whether the organizations the respondents work in have adopted similar or other policies to encourage private developers to construct affordable human settlements.

Respondent 1 highlighted that his organization has a similar policy, however the only affordable human settlement developments he has observed the inclusionary housing policy being practiced was when the organization had direct funding or land sharing agreement with the private sector developers:

> *When the development is fully private, I haven't really seen the appetite from private developers to integrate and undertake these types of projects, but where the development is almost like a development agreement between city and the developer, maybe where the city is providing land and they are providing resources or whatever, then as part of the conditions in the packaging they normally say, yeah we will loan you this land and supply you with bulk services on condition that you allow for X amount of low cost units, or X amount of free units, or X amount of low cost rental, those kinds of things.*

Respondent 1 described another policy that utilized by his organization to encourage private developers to construct affordable human settlements. The organization reduces the contributions that a developer must make towards construction of bulk infrastructure for their development if the development constructs affordable housing:

> *"You also get a discount as a developer, if you meet that certain quota. Because for your bulk contributions for example, RDP and the inclusionary housing are zero rated. So let's say you developing this 10,000 units and 3000 are affordable housing, you wouldn't pay as much for your bulk contribution as you would if it is fully private."*

Respondent 2 responded that her organization has not yet adopted this policy. She did not describe any policies that the organization has implemented to encourage private developers to invest in construction of affordable human settlements.

"Yeah. [Municipality Name] has also done something similar. We've looked at it here in the municipality, but I don't think it's been passed into the actual legislation as yet"

Respondent 3, who worked for an international NGO responded that most of the funding the NGO receives is from private donors and the organization therefore is always working with the private sector to raise funds for is operations.

"Ok, so [NGO Name] received most of its funds through donor funding. This would be from international funding organization that we would apply to such as UN, World Bank and other donors."

4.2.8.2 Funding from project beneficiaries

The professional interview respondents were also asked whether they have worked on informal settlement upgrading projects where some of the funding for the project has been sought from project beneficiaries. Two of the respondents, Respondents 1 and 3 confirmed that they have implement projects where households were required to make contributions. Differences were observed in how the household contributions are made as Respondent 3, who worked for an NGO, described a process where money is collected from households, while Respondent 1, who is government employed, described a process where households are required to fund the construction of their own housing structures.

Respondent 3 gave the below response regarding seeking funding from the project beneficiaries:

"The community members may not have a lot of funding to contribute, but we would always encourage them to contribute. The contribution can be as little as R1.00 per households per day, so we would identify a community member, and this community member would go around the community collecting the household contributions. If the contributions were going towards a project, say for example, the community is required to contribute 10% towards the project, and some of the households are unable to make the contribution, what would be done is during the project, members of the households that are unable to make contributions due to unemployment would be hired, then they would use their income from working on the project to pay their contributions.

The community members are also encouraged to contribute to ensure their buy in to the projects as well as the work the organization is undertaking. So, it's not only a way to make

them "participants" but really make them stakeholders who are involved in the funding, the construction of the project, then they ultimately become beneficiaries."

Respondent 1 described a policy under which they have developed human settlements with serviced stands and issued them to residents of informal settlements"

"What UISP (Upgrading of Informal Settlements Program) *does is give you, in theory, a stand, a serviced stand and you as the individual can build on your own stand. That's your contribution and I think that's fair. The idea is to give people a stand, and I've seen that most cases people that get stands can provide for themselves, and that's actually what they want."*

Respondent 2 stated that they have not implemented such a program in the organization in which she works.

4.2.9 Informal settlement community organization

All the professional respondents were asked the following questions:

Question: *"Over the years, as you have worked in informal settlements, have you observed any changes in them? For example, who they are composed of, how they are structured, or how they are building their structures?"*

Respondent 1 highlighted an observation that informal settlement communities are becoming more organized. The respondent stated that some communities are developing their own leadership structures and neighborhood maps, naming streets, and developing recreational and shopping facilities within their settlement. The respondent described this as a positive trend and went on to state that when the community has one leadership structure, this can assist with interventions to upgrade the informal settlement:

"And when you have a unified and strong leadership in a settlement, it really makes your job a whole lot easier. Like so much easier because you know, you're working with them. When there's infighting and different groups of leadership it becomes quite difficult because they almost sabotage each other because they want to have the last word and all those things. So for the ones that are well organized with strong leadership, whether it's the counselor, whether it's induna, whether it's just communities that have chosen people, that's a really positive sign, because when you arrive as an official to upgrade a lot of the work is already done."

Respondent 3 gave the same response that she has also observed that informal settlements are becoming more organized.

> *"At [NGO Name] we would actually assist the communities with developing leadership structures. Having community leaders makes it easier to engage with the authorities because the community is able to have representatives and it's not just everyone asking for different things. The authorities can also give a message to the community through the leaders, for example options that they can chose from for executing the project. I would say that was an improvement I noted."*

Both respondents highlighted the importance of having an organized community for the informal settlement upgrading processes.

Respondent 2 responded that the biggest trend she has observed that informal settlements are having more access to infrastructure and services, and the households are also willing to pay for the services.

4.3 Findings from a field visit to Mahlakong Informal Settlement

This section of the chapter describes the Mahlakong informal settlement using primary data and background information gathered during the field visit. The chapter seeks to understand the characteristics of the settlement and how it came into existence. In addition, it will describe the opportunities and challenges experienced by residents of the informal settlement and link them to the policies described in Chapter 2.3.

Mahlakong is a 10-hectare, high-density informal settlement that developed in 2014 on land owned by a private company in the Lephalale Local Municipality (Limpopo, South Africa). The settlement is centrally located within Lephalale, it is within walking distance to the town's shopping mall, the government hospital, a primary school, and a TVET college.

Figure 8 below shows an area overview of the Mahlakong settlement and the surrounding services and amenities.



Figure 8: Area Map the Mahlakong informal settlement and the surrounding public and private facilities.

Lephalale is home to two South African government-owned coal power stations and a coal mine. As a result, the town experiences an influx of migrant labourers seeking work opportunities in the companies.

4.3.1 Infrastructure and services provision

During the field visit, it was noted that local authorities have provided some basic infrastructure to the residents of Mahlakong. The Lephalale Municipality has constructed three drinking water standpipes and solar-powered floodlights within the settlement. South Africa's Department of Human Settlements (DoHS), in their design guide for neighborhood planning, prescribes a minimum standard of supply of potable water as "25 litres/capita/day within 200m of all the households" being supported by the "standpipe" (DHS, 2019). In Mahlakong, the three standpipes constructed by the local municipality within the settlement were found to be within the minimum 200m stipulation. During the field visit, residents of the settlement reported that the water supply was reliable, and they were timeously informed by the municipality if water interruptions were planned, allowing them to collect and store water. Figure 9 and Figure 10 shows one of the communal standpipes and one of the area lights constructed by the municipality in Mahlakong.



Figure 9: Communal standpipe for water supply in the Mahlakong informal settlement



Figure 10: Solar powered area lighting for crime prevention

However, during the field visit, it was observed that the settlement has not been provided with infrastructure for household electrification and sanitation. As a result of the lack of infrastructure provision by the authorities, residents of Mahlakong have constructed their own pit latrine toilets, and they use solar panels and batteries for household electrification.

The pit latrine toilets are locked and shared by clusters of households within the settlement. Informal Settlement Resident 1 stated that this is done to maintain cleanliness and hygiene by not making them available to the general public. Multiple pit latrine toilets were seen constructed in clusters in different parts of the informal settlement during the field visit, indicating some form of “settlement planning” process by the residents through having communal areas for sanitation.

During the field visit, Informal Settlement Resident 1 stated that they prefer solar power due to the fire risks posed by using candles and other fire-based fuel and lighting instruments and that the community does not use illegal electrical connections due to the safety risks.



Figure 11: Multiple self-constructed pit latrine toilets clustered together in a section of the Mahlakong Informal Settlement belonging to various households.



Figure 12: One of various solar panels observed in Mahlakong erected for electrification of one of the dwellings.

When it comes to the provision of municipal services, both informal settlement residents confirmed that the Lephalale Municipality regularly collects refuse at a set collection point near the settlement's entrance. However, Informal Settlement Resident 1 noted that the services are sometimes interrupted. During the interruptions, community leaders sometimes walk to the municipality to request the refuse collection, and if these attempts are futile, the refuse is burnt. Informal Settlement Resident 1 informed the researcher that the community prefers to avoid burning waste due to the fire risks associated with fires in informal settlements.

4.3.2 Tenure legalization

During the field visit, it was noted that most dwellings within the settlement had a blue inscription spray-painted near the doorways. Both informal settlement residents reported that the municipality was responsible for making the markings and that they represent some form of "stand number" or house number. The house number can be used to obtain a letter confirming residency from the municipality that can be used for formal trading, such as opening a bank account.



Figure 13: A dwelling in the Mahlakong Settlement with a stand number inscribed using blue spray paint.

According to the interviewed informal settlement residents, the process of obtaining a house number in Mahlakong starts with the purchase or gifting of a land plot from one of the settlement's residents. A dwelling unit can be constructed on the informally transferred land. As the land parcel sizes are not regularized, some residents have large parcels, which they subdivide and sell to prospective settlers. Other residents erect additional shack structures on large parcel sizes and rent these out to tenants seeking accommodation in the settlement.

Informal Settlement Resident 1 stated that land plots can be purchased for as little as ZAR 300.00, and upon purchase, the property buyer must go to the municipality to request to be allocated a house number. The municipality requires a payment of ZAR 50.00, the provision of a South African Identity Document, and agreement from the neighbors for a house number to be allocated to a new dwelling. Informal Settlement Resident 1 referred to the blue inscription as a "stand number" due to a reported promise by the municipality that each dwelling with a number would be allocated a stand when upgrading of the settlement is undertaken. Informal Settlement Resident 2 reported that she pays rent for her house within the settlement, and the house was noted not to have the house number. Her house is located next to the "landlords" dwelling, which has been allocated a house number.

From the surveillance visit to the Mahlakong settlement, this study has found that the municipality has granted residents of the settlement temporary tenure based on the information

given by the interview respondents. The municipality has developed a process that grants the residents of the settlement temporary tenure and formal documentation of their address. The tenure documentation issued to the community members enables them to interact with formal institutions such as banks and apply for employment in the surrounding institutions.

Informal Settlement Resident 1 when describing the temporary tenure legalization process responded as indicated below:

> *"After you have built your shack, you can go to the municipality and for R50.00 they charge you, they come, and they give you a number for your shack. To get a number for the shack, you need to show the municipality your ID Document that you are a citizen and then the municipality sprays on your shack the stand number. Getting a stand number is very helpful because you can go with that letter to the police and get and affidavit, then you can open a bank account."*

4.3.3 Community cooperation

Residents of the Mahlakong informal settlement displayed signs of close cooperation and coordination within the community. As described above, residents share a common understanding of factors that pose risks to their livelihoods, such as how the burning of waste increases the risks of community fires and how illegal electricity connections pose risks to community safety. As a result of this understanding, the interview respondents reported a general preference for using solar power for lighting and a communal ban on illegal electricity connections.

The interviewed residents of the informal settlement also reported that the community has leaders who interact with the municipality on their behalf, for example, to request refuse collection during interruptions. Informal Settlement Resident 1 reported that a municipal ward committee member resides in the community, and the community also liaises with the municipality through this community member.

Regarding communal amenities, the Mahlakong community has a soccer field, and a football game was underway during the field visit. The interviewed residents of the informal settlement also reported that there is a small convenience store in the community from which they buy groceries such as sugar, salt, and home-baked bread. An attempt was made to visit the store during the field visit, however, it was closed, and the neighbors reported that the store owner was away to replenish the stock.

Figure 14 below shows the sports field inside the Mahlakong Informal Settlement.



Figure 14: The soccer field inside the Mahlakong Informal Settlement, with a football game underway.

4.3.4 Community ingenuity and innovation

Signs of ingenuity and innovation among community members were noted in the Mahlakong informal settlement, especially when addressing outstanding infrastructure and services. As already stated, the community members preferred using solar panels and batteries to electrify their dwellings.

Informal Settlement Resident 2 noted that due to the solar system she had installed, electricity in the house is often sufficient for lighting the unit and electrification of household appliances. During the interview, the respondent stated the following:

> *" I have a 12 watts, lights and I use it to watch TV as well. Everything! The electricity is enough, even for cooking. I can use gas bottle or a four plate stove. I did the solar myself because I saw someone who connected it for himself. I was watching and I say no, this thing I will do it for myself! I am using 100 Watts solar and 12 watts battery, I buy it from a wholesale downtown. Its affordable."*

4.4 Thematic comparison of the research findings

Similar to the thematic comparison that was undertaken in Chapter 2, a thematic comparison has been carried out of the findings. This thematic comparison will simplify the findings from the interviews and field visit, and assist with analysis of the findings. Table 4 presents the analysis of the findings

Table 4: Thematic analysis of the responses received from the professional interview respondents, and the field visit to Mahlakong informal settlement.

Research Question 1: Informal settlement upgrading			
Respondent 1:	**Respondent 2:**	**Respondent 3:**	**Mahlakong Informal Settlement:**
- Stated that his employer regards in situ upgrading of informal settlements as the most effective strategy for addressing them, and relocations are only carried out when necessitated by circumstances, (e.g. informal settlements on vicarious or privately owned land).	- Also stated that in situ upgrading of informal was the preferred strategy by her organization. Stated that her organization views in-situ upgrading as the most effective strategy for developing affordable housing.	- Stated that the organization's major focus was assisting with the in situ upgrading process in informal settlements through development of settlement maps that can be utilized to formalize the settlements.	- Evidence of in situ upgrading of the informal settlement was observed during the field visit through the construction of infrastructure by the municipality such as drinking water stand pipes and area lighting.
Research Question 2: Recognition of different types of informal settlements			
Respondent 1:	**Respondent 2:**	**Respondent 3:**	**Mahlakong Informal Settlement:**
- Stated that only shack built informal settlements are recognized by his organization and that illegally occupied multi-storey buildings, which he referred to as "vertical settlements" are not recognized as informal settlements by his organization or within the national legislation of South Africa.	- Gave a response similar to Respondent 1 that only shack built informal settlements are recognized as informal settlements within her organization and that multi-storey and high rise buildings that are illegally occupied are not recognized as informal settlements.	- The respondent stated that the NGO addresses informal settlements in accordance with their recognition within the area it is operating. As a result, in South Africa, the NGO only recognizes shack built settlements informal settlements and it does not recognize multi-storey buildings as informal settlements.	- During the field visit, it was noted that Mahlakong is a shack built informal settlement.

Research Question 3: Prioritization of informal settlement upgrading interventions			
Respondent 1: - Highlighted that his organization uses the National Housing Code (NHC) Phase 1 report to prioritize settlements. Also highlighted that dynamic circumstances, such as a fire or natural disaster may affect prioritization of settlements. - Stated that grant conditions may also affect prioritization of informal settlements for upgrading. - Also stated that professional judgement may be made by the officials within the organization.	**Respondent 2:** - Also stated that her organization utilizes the NHC phase 1 report to determine which informal settlement to prioritize interventions towards.	**Respondent 2:** - Stated that they primarily work with informal settlements deemed as upgradeable by the different municipalities in which the NGO undertakes interventions. Stated that the work they do, such as re-blocking, development of community leaders, and development of area maps ultimately assist the municipality to carry out the upgrading interventions.	**Mahlakong Informal Settlement:** - Not determinable from the field visit.
Research Question 4: Infrastructure and services provision			
Respondent 1: - Referred to the NHC process for identification of infrastructure. Stated that informal settlements are consulted on their needs.	**Respondent 2:** - Described an NHC incremental process of providing infrastructure, starting from shared standpipes to standpipes in each household.	**Respondent 2:** - Stated that the NGO does not develop infrastructure but assists communities and government to map out infrastructure requirements.	**Mahlakong Informal Settlement:** - Shared infrastructure such as drinking standpipes and area lighting was observed during the field visit.

Research Question 5: Tenure Legalization			
Respondent 1: - Stated that tenure legalization is provided by his organization through full title only. - Indicated that explorations are underway to develop a "municipal register of occupation" within his organization to grant temporary tenure security for residents of informal settlements.	**Respondent 2:** - Noted an incremental tenure legalization mechanism known as a "temporary occupation permit" which is certified by the municipality. The permit grants households a temporary address in their informal settlement and this enables the residents to interact with formal organizations (e.g. banks, schools and potential employers).	**Respondent 3:** - Stated that the NGO partners with municipal authorities in the areas they work to provide full title to residents of the informal settlements.	**Mahlakong Informal Settlement:** - Evidence of temporary tenure legalization arrangements were noted during the field visit. Shacks were spray painted with blue numbers and residents reported that the numbers represent a "stand number" given by the municipality that they use as their address while awaiting upgrading of the informal settlement. Residents stated that they use this address when applying for jobs and schools for their children.
Research Question 6: Community Engagement			
Respondent 1: - Noted community approval as an intrinsic part of the upgrading process. Stated that community must be involved throughout the process as they are required to sign off on the proposed designs.	**Respondent 2:** Described a process of ensuring informal settlement communities are involved in project decision making processes through the Project Steering Committee.	**Respondent 3:** Highlighted various functions fulfilled by the NGO to uplist communities such as the development of leadership structures and community savings.	**Mahlakong Informal Settlement:** Residents responded that the municipality engages with them for services such as refuse collection, for provision of temporary tenure security and construction of infrastructure.

Research Question 7: Administrative Innovation and openness to the adoption of new strategies			
Respondent 1: - Described a project where the municipality constructed multi-storey housing as innovative but expressed concern regarding maintenance of communal spaces and infrastructure. The respondent noted that this often requires joint contributions by all households and stated that this may be difficult to achieve for residents of informal settlements. - Responded negatively to the adoption of the Brazilian policy of land ownership based on proof of occupation over a period without any disputes. - Discouraged adoption where private developers undertake informal settlement upgrading interventions due to the potential exploitation of the households.	**Respondent 2:** - Noted an international award winning project pioneered by a municipality in which shipping containers are converted into water and sanitation stations. Highlighted that the project was not implemented sustainably and resulted in financial loss for the municipality. Also highlighted innovative structural design of affordable housing that increased the density of settlements. - Responded that the South African constitution would make it difficult to adopt the Brazilian land ownership policy. - Discouraged the adoption of the Indian policy of using private developers for upgrading of informal settlements.	**Respondent 3:** Highlighted various innovations in engineering techniques, such as the construction of modular housing units, and construction of houses using recycled materials such as sand bags, plastic bottles, and tyres.	**Mahlakong Informal Settlement:** Residents of the informal settlement were observed utilizing solar power for lighting and electrification of their houses. Residents assembled their own solar power infrastructure for their households.

Research Question 8: Funding for Informal Settlement Interventions			
Respondent 1: - Highlighted that most projects undertaken by his organization are funded through government grants. Indicated the organization may also use its own funds, however most projects are funded through grants obtained from national government. - Described a policy through which his organization reduces development fees when developers construct affordable housing. He also described partnerships where the organization provides land for private developers to construct affordable housing. - Welcomed proposals for beneficiaries of informal settlement upgrading interventions to provide a portion of the funding for the project.	**Respondent 2:** - Responded that most projects undertaken by her organization are also funded though grants from national government and noted that the value of the grants has been declining. - Indicated that her organization is in the process of developing a policy similar to the policy developed by the City of Johannesburg (2020) which mandates private developers to develop a certain amount of affordable housing units per number of housing units they develop.	**Respondent 3:** - Stated that as the organization is an NGO, it depends on funding from private organizations and internal humanitarian organizations such as the UN and the World Bank. - Described funding arrangements where households benefiting form the informal settlement upgrading intervention are encouraged contribute a percentage of the funding for the project. Members of households that cannot afford to make the contributions are employed by the project during construction and they use these salaries to pay their contributions.	**Mahlakong Informal Settlement:** - The sources of funding for the infrastructure that was observed in the informal settlement during the field visit could not be determined, however residents did note that it had been constructed by the municipality.

4.5 Conclusion

This chapter has described the findings of this study from the semi-structured interviews with professionals working in government and at an NGO to address informal settlements in South Africa, as well as results from a field visit and semi-structured interviews with residents of the Mahlakong informal settlement in Limpopo. The findings reveal a preference for upgrading informal settlements in-situ over relocation by the South African government. The findings also reveal a structured approach towards in situ upgrading of informal settlements, which is prescribed in the National Housing Act of 2009 (DHS, 2009). The NHC upgrading process is incremental and encourages the provision of basic infrastructure, even in settlements likely to be relocated. In addition to this, the findings also reveal very stringent requirements for community participation during the in-situ upgrading process.

The findings also reveal a lack of recognition of inner city informally or illegally occupied buildings as informal settlements in South Africa. There seemed to be a lack of interest in investigating the benefits that could result from such recognition for the government and residents of these types of settlements by the government-employed professional respondents. The findings also reveal a general tendency towards highlighting existing policies and status quo circumstances that may contrast the adoption of policies from other countries that could potentially be beneficial towards addressing informal settlements in South Africa. When it comes to the relationship between the state and NGOs, the results reveal a mutually beneficial relationship.

On the informal settlements of South Africa, the findings reveal the existence of organized communities with structured leadership and frequent engagements with the state. Some of the solutions developed by residents of the settlements may provide solutions to national crises, such as using solar power for household electrification, as observed in Mahlakong.

This chapter concludes that many interventions are underway by the state and NGOs to address informal settlements in South Africa.

5. CHAPTER 5: ANALYSIS OF RESEARCH FINDINGS

5.1 Introduction

This chapter unpacks and analyses the findings of this study. The chapter begins by noting the strategies for addressing informal settlements being implemented successfully in South Africa. The successes of these strategies have been identified through the positive outcomes revealed by the findings of this study. The approach towards implementing these strategies is also compared to the recommendations from international best practices highlighted in the literature review to determine if there may still be room for improvement.

The chapter then continues to identify areas where the strategies for addressing informal settlements in South Africa can be improved. These are areas in the results where there is no clear policy interpretation by government institutions and where there have been limited attempts towards implementing the policy prescriptions.

5.2 Positive interventions that are underway in South Africa's response to informal settlements

This chapter section identifies the strategies being implemented with evident success in South Africa when addressing informal settlements. The methods of implementing these strategies are also compared with recommended international best practices uncovered in the literature review.

5.2.1 Preference for in-situ upgrading and incremental development

Both professionals fulfilling roles in government institutions expressed a preference for in-situ upgrading of informal settlements. As noted by Respondent 2, the institution in which she serves identified in-situ upgrading as the best strategy for delivering affordable housing and has observed notable successes, especially in providing basic infrastructure and services. The respondent noted that while relocations still occur, these are only undertaken when tenure security cannot be granted either due to land owners refusing to sell, or on settlements in environmentally precarious locations.

The results also reveal that the process followed to upgrade informal settlements, as described in the National Housing Code of 2009 (NHC) (DHS, 2009), lends itself to incremental development. In an informal settlement undergoing in-situ upgrading, housing development is undertaken in the final phase, while tenure security, which is full title ownership, is granted in the earlier phases. The development of infrastructure and services for the settlement is

prioritized and undertaken before housing is developed. In some instances, as noted in the literature review, the government may provide serviced stands, and the beneficiaries are then responsible for constructing their own housing units (Ntema, 2017).

Tenure security enables residents to invest in the site and, overtime, improve the quality of their housing unit (Turner, 1976). This policy position is in agreement with the World Bank policy, which advocates for in-situ upgrading of informal settlements and incremental housing (World Bank, 2011). In India and Brazil, the study also noted a general preference for upgrading informal settlements in situ, even if the methods adopted towards the implementation of the policy differ.

5.2.2 Incremental tenure arrangements

Tenure security was highlighted in the literature as one of the foremost issues affecting residents of informal settlements globally (World Bank, 2011). For residents of informal settlements in South Africa being upgraded according to the NHC process, tenure security is not an issue as these households are given full title ownership during the upgrading process. For households in settlements that are not likely to be upgraded, tenure security may be an issue, however, the results uncovered the existence of a temporary tenure arrangement, which grants them recognition within their communities and enables them to interact with formal institutions to improve their livelihoods.

Respondent 2 described a temporary tenure arrangement for residents of informal settlements within her organization's jurisdiction. The temporary tenure arrangement they described was also observed during the field visit to the Mahlakong informal settlement.

For residents of settlements in phase 2 of the process described by the NHC, obtaining recognition of their address temporarily is done through the allocation of a shack number by the local authorities. The shack numbers are recorded on a municipal register, and the residents of the settlement are issued with documents they can use to confirm their occupation of the temporary address. The document from local authorities is used with an affidavit by residents of the informal settlement to interact with formal institutions such as banks and potential employers. The shack numbering process also assists local authorities with developing a register of the households living in a particular informal settlement. This temporary tenure arrangement is adopted for all informal settlements, even those unlikely to be upgraded in the long term, such as the Mahlakong informal settlement.

Community members who responded to the study interviews noted that the settlement would likely not be upgraded as the land on which it is located does not belong to the municipality. However, the landowner had allowed the residents to remain on the property as the municipality had no other suitable land to relocate them. Mahlakong is, therefore a temporary settlement, and residents are given temporary tenure through a letter from the municipality acknowledging their settlement temporarily on the land and shack number.

This temporary tenure arrangement is a positive sign in South Africa because it allows residents of an informal settlement to remain in their settlement with recognition. Recognition is essential for residents of the informal settlement because it enables them to interact with formal institutions, which can lead to improvements in the livelihoods of the residents.

5.2.3 Provision of basic infrastructure and services

The government-employed professional respondents also noted significant success in the provision of basic infrastructure and services for informal settlements in South Africa. Furthermore, as observed during the field visit to the Mahlakong informal settlement, basic infrastructure and services are also provided in settlements that are not earmarked for upgrading in the long term.

The process adopted for in-situ upgrading of informal settlements in South Africa as prescribed in the National Housing Code of 2009 (DHS, 2009) empowers local authorities to develop infrastructure and basic services while assessments are underway to determine the long-term suitability of the settlement for upgrading. Provision basic services such as clean potable water and refuse collection can significantly improve the livelihoods of residents of informal settlements (World Bank, 2011). This is one area in which the preference for in-situ upgrading, as described by the professional interview respondents, has resulted in significant successes.

The results also revealed innovative interventions underway towards improving the provision of basic infrastructure and services in South Africa. Award winning projects, such as the communal ablution blocks constructed by one of the municipalities in South Africa reveal a strong interest by authorities to improve services for residents of informal settlements. The professional respondent who described the communal ablution blocks also alluded that these facilities are often constructed in settlements that may not be upgraded in the long term. This reveals a wholistic approach towards providing basic infrastructure and services for all types of settlements. For settlements that are likely to be upgraded, increased levels of services

described in the Neighborhood Planning and Design guide (DHS, 2019) such as a standpipe in each yard or piped water in the house may be constructed.

5.2.4 Community Engagement

The results also revealed that the prescribed NHC process for upgrading informal settlements in-situ in South Africa requires a high level of community engagement. In the NHC process, community buy in and continuous engagement are central for the continuation of the projects in the upgrading process.

Respondent 1 stated that the community is one of the most important stakeholders in the process, and the role of the elected government official is to hear their requirements, attempt to fulfil them, and advise on suitable alternatives that can be implemented if it is not possible to implement their requirements. This reflects a strong understanding of the role of the community in the projects and attitude geared towards fostering positive engagements that enhance the project implementation process.

Community engagement is so strongly emphasized in the process, that the community is required to sign off on the settlement layout plans developed by the professionals. These are the plans that indicate the number households in the settlement, the streets, the services and amenities that will be constructed during the upgrading process. This is in line with the best practice as prescribed by international organizations such as the World Bank (World Bank, 2011) and Un-Habitat (UN-Habitat, 2015).

The literature review revealed that community engagement is also encouraged in the policies of India and Brazil. The results reveal that South Africa may be in the forefront of implementation of this process in comparison to these countries, especially in the case of India where the literature revealed that in projects funded through for-profit developers, community demands may often be ignored (Burra, 2005).

5.3 Opportunities for improvement in South Africa's response to informal settlements

This chapter section describes areas the study found as posing opportunities for improvement in South Africa response to informal settlements and development of affordable housing. These may be areas that are ignored in the legislation, or areas in which the comparative analysis revealed that South Africa may improve by adopting similar practices as India and Brazil, or other countries highlighted by the World Bank and UN-Habitat.

5.3.1 Expanding the definition of informal settlements

Adopting an expanded definition of informal settlements presents an opportunity for improving South Africa's response towards informal settlements. Currently, illegally or informally occupied multi-storey buildings in South Africa are not recognized as informal settlements. Our definition of informal settlements only recognizes illegally occupied land characterized by shack structures as informal settlements. Abandoned and dilapidated multi-storey buildings, especially in the inner city districts of many of South Africa's metros are often illegally occupied by settlers, however these are not recognized as informal settlements.

Respondent 1 attempted to differentiate between the illegally / informally occupied multi-storey buildings through nuances such as that the buildings may be hijacked and rent being paid to a criminal landlord and described this as a law enforcement issue rather than a human settlements issue. However, the same respondent cited similar circumstance in shack characterized settlements where residents pay rent to a landlord, despite the land being illegally occupied. This situation was also observed in the Mahlakong informal settlement where one of the interview respondents reported that they pay rent to a landlord, even though the settlement is informal.

Table 5 below compares the parallels between informal settlements on illegally occupied land and illegally occupied multi-storey buildings and how they all point towards both kinds of settlements being informal.

Table 5: Comparison of shack slums and illegally occupied multi-storey buildings showing the parallels between these two settlement types.

COMPARING SHACK SLUMS VS ILLEGALLY OCCUPIED MULTI-STOREY BUILDINGS				
SHACK CHARACTERISED SETTLEMENTS ON ILLEGALY OCCUPIED LAND		**INFORMAL SETTLEMENT**		**ILLEGALY OCCUPIED MULTI-STOREY BUILDINGS**
Occupation of land is done illegally. The state then intervenes to move the settlement towards legality.	→		←	Occupation of building is done illegally. The state then intervenes to move the settlement towards legality.
Residents may sometimes pay rent to a "landlord" even though settlement on the land is illegal. Such incidences were reported by both professional respondents serving roles in government	→		←	Building may be "hijacked" by a de facto landlord who demands rental payments from residents without providing services.

institutions and observed during the field visit to Mahlakong.				
Provision of infrastructure and basic services lacking, and likely will continue without state intervention.	→		←	Provision of infrastructure and basic services lacking, and likely will continue without state intervention.

The only notable difference between the two types of settlements is the types of title that would be required to issue to residents upon formalization of the settlement.

As noted in Brazil and cited by Budds, et al. (2005), the new Sao Paulo policies for addressing informal settlements and poor supply of affordable housing adopted in 2001 included illegally occupied inner city buildings. The opportunities that may become available towards addressing informal settlements in South Africa with the inclusion of illegally occupied multi-story buildings were identified as follows:

1. Metropolitan municipalities, who often struggle with illegally occupied buildings in the CDBs may gain access to national funding for addressing these buildings through the national grants developed for informal settlement upgrading interventions.
2. Increased densification in the cities and in informal settlement interventions.
3. These structures, if appropriately renovated, present low-cost opportunities to develop affordable housing which may reduce the development of informal settlements.
4. In a South African context, exploring the use of dilapidated inner city buildings to provide affordable housing may be used by the government to counter apartheid spatial planning which settled low-income households on the urban periphery. Respondent 2 lamented the role government has continued to play in perpetuating this spatial planning due to the lack of availability of land for housing development in the inner city areas.

   "I'm sure you have heard of the 404040? OK, So, what they say is when the state has been putting people into housing, We'll take them to a 40 square meter house, but they have to spend 40% of their income on transport and their children have to walk 40 minutes to school because the affordable land and the land that's of sufficient size to develop a big project is all on the outskirts of town. So, the state housing program has actually entrenched the spatial inequality, where poor people pay more to access the city."

5. The formalization of illegally occupied inner city buildings may benefit the city at large by reducing crime which can be enhanced by the illegal occupations.

The only notable disadvantage of rehabilitating multi-storey buildings and providing full title to beneficiaries of such a program as would typically be done in an informal settlement upgrading project is that the title arrangement would require a "sectional title" due to the development of common areas. The challenge of sectional title and ideas on how this can be overcome from India and Brazil are described in more detail in Section 5.3.2 below.

5.3.2 Expanding Tenure Legalization Options

The analysis reveals a likely link between the lack of recognition of illegally occupied multi-storey buildings as informal settlements, and the restrictions in the type of title ownership currently being issued to beneficiaries of state informal settlement in situ upgrading interventions. Currently, the state only issues full title to beneficiaries of in-situ upgrading interventions. However, multi-storey buildings would require sectional titles due to common areas, which creates a need for body corporates and the collection of levies to upkeep the common areas.

Respondent 1 highlighted some unanswered questions regarding the use to sectional titles in in situ upgrading interventions:

> *"there's a lot of unanswered questions about whether the poor people can organize themselves into Body Corporates, have the capacity to manage the buildings, and whether paying levies is something that's even affordable to people who are earning less than R3500 per month per household because those are the beneficiaries."*

The professional respondent however cited a pilot project that is underway by one of the municipalities where a multi-storey development was undertake during in-situ upgrading of an informal settlement.

> *"I believe in Johannesburg in Fleurhof, the municipality is actually paying the developer to continue to maintain. But whether that's financially sustainable, there's a big question about that."*

As demonstrated in the responses of all the professional respondents and the field visit to Mahlakong, the study results have shown the strong ability of residents of informal settlements to organize themselves and develop their own leadership structures. For successful implementation, the informal settlement upgrading process also requires participation and

agreement between the residents of the informal settlement. Noting this, it is not an unreasonable stretch of the imagination that with sufficient training and assistance, residents of informal settlements could organize themselves into body corporates to manage their upgraded settlements.

Therefore, the recommendation of this study is for more in-depth research on how multi-storey sectional titles can be implemented in the upgrading of informal settlements in South Africa. A detailed analysis of how funding and community expertise can be raised for the maintenance of common areas will also be required. Below are a few suggestions that can be made for the collection of levy fees based on other findings from this study.

5.3.2.1 Utilizing municipal funds for building levies

The first suggestion, as already being undertaken by one of the municipalities within South Africa in the Fleurhof informal settlement upgrading project (DHS, 2017), is to use municipal funds to maintain common areas. More detailed studies are needed on the costs and the benefits that can result from the increasing densification of upgraded informal settlements through the use of multi-storey buildings and sectional titles. These investigations may look at:

- The financial savings resulting from reducing land use by implementing multi-storey buildings. The benefit costs of keeping the land available for future use may also be evaluated.
- If the multi-storey informal settlement upgrading project is undertaken in the inner city, the savings realized by reducing urban sprawl, which often results in the need to extend infrastructure and services to the city outskirts, should also be evaluated.
- To implement the livelihoods approached promoted in the BNG, the municipalities can train and employ beneficiaries of the informal settlement to maintain the building facilities.
- Quantifying the social benefits that may potentially arise for the city at large from the informal settlement upgrading intervention.

5.3.2.2 Mixed funding methods for building levies

In India, the RAY policy developed a funding strategy that requires the participation of all the stakeholders in the project. A proportion of the funding for the maintenance of common areas could be derived from the project's beneficiaries.

As identified in the research findings from Respondent 3, residents of informal settlements in South Africa have already demonstrated an ability to raise contributions for upgrading projects in their communities. As also done in the projects undertaken by the NGO, beneficiaries who fail to contribute the fees towards the maintenance of the common areas may pay using sweat equity.

> *The community members may not have a lot of funding to contribute, but we would always encourage them to contribute. The contribution can be as little as R1.00 per households per day, so we would identify a community member, and this community member would go around the community collecting the household contributions.*
>
> *If the contributions were going towards a project, say for example, the community is required to contribute 10% towards the project, and some of the households are unable to make the contribution, what would be done is during the project, members of the households that are unable to make contributions due to unemployment would be hired, then they would use their income from working on the project to pay their contributions."*

5.3.3 Increasing private sector participation in affordable housing development

The results indicate very little participation by private developers in upgrading informal settlements. While there are interventions underway to increase private sector participation in some jurisdictions within South Africa through the encouragement of inclusionary housing development, Respondent 1 noted that the private sector has only participated in projects being undertaken jointly with the state:

> *"When the development is fully private, I haven't really seen the appetite from private developers to integrate and undertake these types of projects, but where the development is almost like a development agreement between city and the developer, maybe where the city is providing land and they are providing resources or whatever, then as part of the conditions in the packaging they normally say, yeah we will loan you this land and supply you with bulk services on condition that you allow for X amount of low cost units, or X amount of free units, or X amount of low cost rental, those kinds of things."*

The move by the City of Johannesburg towards encouraging private developers to participate in the development of affordable housing is a step in the correct direction, according to Litman (2022) and the BNG. Additional incentives and interventions to improve private sector

participation in affordable housing development should be investigated. From information developed from the study, the following alternatives are proposed for further investigation:

- Use of Transferrable Development Rights as done in India for developers to trade land with the city to develop affordable human settlements.
- Implementing quotas for developers requiring proportions of housing developed to adhere to specific affordability criteria. This strategy is further described in Section 5.3.4 below.

5.3.4 Diversified funding mechanisms for informal settlement interventions

Another area where there are opportunities for improving South Africa's response towards informal settlements is through broadening the funding sources for informal settlements. Currently, most funding for informal settlement interventions is derived from government grants, and as described by Respondent 2, this funding is in decline:

"…the funding sources are separate. So, we use HSG, the human Settlements development grant to build houses, and that comes from province. To give you an idea of the financial constraints were facing, our budget for this financial year 2023 608 million for new housing developments, next year it's 280 million..."

"At the same time, I think even our USDG, which is what we use mainly to do incremental upgrading, that's also been cut back. I think we've gone from R900 million to R600 million. But the USDG is used for basic services also for some planning and pre-feasibility for housing projects."

The study found very little indication in the literature and the responses of the government-employed professionals that there is an interest in developing strategies to diversify the sources of funding for informal settlement upgrading interventions. The literature revealed that the City of Johannesburg has developed a policy towards encouraging private developers to construct affordable housing, and this policy implements some of the measures identified in India to encourage private developers to upgrade informal settlements, such as relaxed Floor Area Ratios for developments. Beyond this, no other policies were found that seek to diversify funding for informal settlement and affordable housing development interventions.

Some of the suggestions that can be made from the study's findings are described below.

5.3.4.1 Quotas for private developers constructing housing in a jurisdiction

Respondent 2 described a quota policy in London where private developers are required to construct a certain amount of affordable housing units for each higher-end development they construct. These units are not necessarily required to be on the same building site as the more expensive units.

Local authorities in South Africa can adopt this policy and investigate legislating development quotas for private developers to develop housing across all income groups. The percentages of these quotas could be designed with the income demographics across the local municipality in mind. Developers wishing to waive these quotas due to, for example, low profitability would be required to contribute to a fund designed to cater towards housing development for low-income groups.

To better illustrate the quotas, an example is illustrated in Table 6 below.

Table 6: Example of development quotas that could be legislated to encourage private developers to construct affordable housing units.

Description	Quota Arrangement 1	Quota Arrangement 2
High & Middle Income Housing *(for Sale HUC > R500k and < R3m)* *(For Rental HUC >5k pm and < R15k pm)*	70%	80%
Low Income Housing *(Housing unit costs <500k)* *(For Rental HUC <5k pm)*	30%	20%

***HUC =Housing Unit Cost.*

e.g., Each private developer operating in this municipality is required to ensure out of all the housing units they construct, at most 70% will cater to high and middle income groups and at least 30% cater to low income groups.

While this policy may not necessarily lead to direct intervention by private developers in the upgrading of informal settlements, it will increase the supply of affordable housing which can reduce the number of households living in informal settlements. This policy may also reduce the state's burden of providing housing for the lower income groups and unlock funding that can be redirected towards the most indigent households in the city, which is likely those living in informal settlements.

5.3.4.2 Incentives for private developers to construct affordable housing units

Another area that the government could investigate to improve the funding supply for informal settlements and low-income housing interventions is to incentivize private developers to undertake low-income housing developments that could cater to households living in informal settlements. Incentives may be monetary or use some form of municipality recognized value system such as Transferable Development Rights (TDRs) used in India. Examples the state could offer private developers include the following:

- Reduce municipal fees (e.g., development approval fees and utility rates) for developers who undertake low-income housing projects.
- Develop tax incentives for developers to undertake low-income housing developments.
- Land sharing, where developers may take ownership of a portion of land from the settlement that is made available through undertaking an informal settlement upgrading intervention.

These incentives may need to be designed to not only reduce the capital fees for undertaking low-income development but also make it a profitable strategy in the long term to invest in low-income housing developments in order to entice private developers to invest.

5.3.4.3 Housing unit sales in informal settlement upgrading interventions

Another strategy that could be adopted to generate income from informal settlement interventions is densification. This would allow for the development of more housing units than the informal settlement dwellers. The additional units could be sold to generate income and fund a portion of the project.

Government entities in South Africa could adopt this policy in their informal settlement upgrading interventions and construct for-profit units that can be sold in the market to generate income during informal settlement upgrading interventions.

5.3.4.4 Community Savings

Of the professional interview respondents approached for the study, the NGO-employed professional was the only one to describe an arrangement where communities are encouraged to save and contribute towards the upgrading projects in their settlement.

The government-employed professionals did not describe such an arrangement on their projects. However, one of them did describe a process where the beneficiaries are required to contribute to the project by constructing their own housing:

"What UISP does is give you, in theory, a stand, a serviced stand and you as the individual can build on your own stand. That's your contribution and I think that's fair."

The study's literature review revealed a mechanism from India that may be adopted to encourage community savings for informal settlement upgrading interventions. Mukherjee & Raut (2017) described the Community Led Infrastructure Finance Facility (CLIFF) funded mainly through community savings and used for informal settlement upgrading interventions. A fund similar to CLIFF could be developed in South Africa that could be adopted to encourage communities to save from the inception of projects to contribute towards more than just their own housing units in the project.

Like the RAY scheme in India, community contributions could fund a portion of the project, for example, as little as 1% of the overall project funding. As Burra (2005) described, community contributions encourage buy-in and give agency to communities in their informal settlement upgrading projects.

6. CHAPTER 6: CONCLUSION

This chapter provides a summary and conclusion of the study. To demonstrate that the study's objectives have been accomplished, the chapter begins by reiterating the aim and objectives of this study, it then details the process that the study has followed, and then described the findings of the study and how they have contributed towards achieving the study's aim and objectives. The report then concludes with recommendations for interventions that can be adopted to improve the response to informal settlements and affordable housing development in South Africa.

6.1 The aim and objectives of this research study

The main aim of this study was to determine the impact and effectiveness of South Africa's response strategies for addressing informal settlements and developing affordable housing in comparison to the strategies adopted in Brazil and in India. The objectives of this studied were outlined as follows:

- To determine the general issues affecting informal settlements globally and more specifically in South Africa.
- To identify and investigate the strategies currently being implemented to address informal settlements and develop affordable housing globally and in South Africa.
- To identify and describe alternative policies and strategies that are used in other countries that have not been adopted in South Africa.
- To determine the shortcomings in policies and interventions used in South Africa for addressing the development of informal settlements and affordable housing through comparison with the policies and interventions from other countries.
- To determine whether policy makers and agencies addressing informal settlements in South Africa are aware of the alternative strategies, their positions on the alternative strategies, and if these strategies may be considered for implementing in South Africa.
- To recommend policies and strategies from other countries that may enhance the effectiveness of South Africa's response to informal settlements and affordable housing development if adopted in South Africa.

6.2 The methodology followed by this research study

The study used literature from India, Brazil, and international organizations such as the World Bank and UN-Habitat to uncover strategies utilized in these countries and globally towards addressing informal settlements and developing affordable housing. The literature review was also used to develop an understanding of the interventions currently being implemented in South Africa.

The study then progressed to undertaking semi-structured interviews with professionals serving roles in organizations that address informal settlements in South Africa. These professionals had to serve roles that required them to directly undertake interventions towards informal settlements and the development of affordable housing in South Africa and be from different organizations across different provinces of the country. The study also required a visit to an informal settlement in South Africa, where semi-structured interviews were also conducted with two residents of the settlement. The semi-structured interviews and the field visit were undertaken to develop a deeper understanding of the interventions underway to address informal settlements and develop affordable housing in South Africa.

6.3 The findings of the study

The study found a preference to upgrade informal settlements in situ across various government institutions within the country, as this is perceived as the best way to deliver affordable housing. The study also found that most institutions undertaking interventions follow a process prescribed by the National Housing Code of 2009 (DHS, 2009). The study found that the process described in the policy had the following strengths:

- The policy recommends that informal settlements be upgraded in situ. This is supported by other policies, such as the Breaking New Ground policy of 2004 (DHS, 2021), which has encouraged the preference for in-situ upgrading the professional survey respondents highlighted. In-situ upgrading of informal settlements was also determined to be recommended by The World Bank (2011) and Un-Habitat (2015) to address informal settlements and develop affordable housing. In India and Brazil, this strategy was also recommended, however the methods towards its implementation differed.
- South Africa's informal settlement upgrading legislation has been developed with an emphasis on engagement with the beneficiaries of the in-situ upgrading interventions. As a result, South Africa has a very strong practice of community engagement in in situ upgrading interventions as projects cannot continue without sign off and approval of

the beneficiary community. This was found to be in line with international best practice recommendations.

- The findings also revealed the existence of incremental tenure arrangements due to the implementation process described in the National Housing Code of 2009 (DHS, 2009). These arrangements enable residents of informal settlements to gain recognition that enables them to interact with formal institutions while awaiting more permanent tenure arrangements. This arrangement was also found to be in line with international best practice recommendations.

- There were also notable successes revealed in the study when it comes to the delivery of basic infrastructure and services to informal settlements. In line with national policies, infrastructure and services provision are implemented incrementally, and the was also a development of infrastructure in communities that are not likely to be upgraded in-situ. Innovative practices were noted in how basic infrastructure is developed. This practice was also found to be in line with international best practice recommendations.

The study, as per the main objective, also uncovered some areas in which the response to informal settlements in South Africa can be improved:

- The study found that the policies in South Africa only recognized settlements characterized by shacks on illegally occupied land as informal settlements. There was no recognition for illegally occupied multi-storey structures which typically occur in urban centers. As such, each municipality in South Africa was left to develop its own strategies towards addressing these types of settlements and they could not use the national funding grants developed to fund informal settlements to fund interventions targeting these types of settlements. The study recommended the development of strategies towards granting these types of settlements recognition as informal settlements. The study cited policies from Brazil which were developed in 2002, that recognized illegally occupied multi-storey buildings as informal settlements and developed policies towards addressing them.

- The study also found that in-situ upgrading interventions only utilize full title as a means to grant long term tenure security to beneficiaries of informal settlement upgrading interventions. The study recommended that strategies for providing various tenure alternatives, such as sectional titles be investigated. Recommendations were

made on how common areas could be funded as referenced from high-rise informal settlement upgrading projects in India which include using community savings or government funds.

- The study also recommended that strategies be developed to increase private sector participation in upgrading of informal settlements and the development of affordable housing developments. Strategies such as incentives or legislated quotas for private property developers could be used to encourage their participation on the upgrading of informal settlements and development of affordable housing. This strategy is similar to the strategy described by Mukherjee and Raut (2017) adopted in India where private developers undertake in-situ upgrading interventions in-return for profit and incentives provided by local authorities.
- The study also recommended that funding sources for informal settlement and affordable housing development incentives be diversified. The study results revealed that most in-situ upgrading interventions are funded by the state in South Africa, and the funding was found to be declining. Additional sources of funding could be unlocked through community savings and incentivizing private developers to intervene towards informal settlements of develop affordable housing.

7. References

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ANNEXURE A: ETHICAL CLEARANCE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Mlotsa

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H23/02/11**
PROJECT TITLE	The impact of South Africa's response to informal settlements and affordable housing development when compared to the responses adopted in India and Brazil
INVESTIGATOR(S)	Ms C Mlotsa
SCHOOL/DEPARTMENT	School of Civil and Environmental Engineering/
DATE CONSIDERED	17 February 2023
DECISION OF THE COMMITTEE	Approved Risk Level: Minimal
EXPIRY DATE	13 March 2026

DATE 14 March 2023 **CHAIRPERSON** _____
(Professor J Watermeyer)

cc: Supervisor : Professor P Biyela

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **A SIGNED COPY** returned to the Secretary electronically. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved I/we undertake to submit an amendment of the protocol to the Committee. **I/we agree to completion of a regular progress report. For Minimal and Low Risk studies, this is due annually on 31 December. For Medium and High Risk studies, this is due twice annually on 30 June and 31 December.**

_____ 17 / 02 / 2023
Signature **Date**

ANNEXURE B: RESEARCH PARTICIPANTS INFORMATION SHEET



School of Civil and Environmental Engineering

Dear Sir / Madam

My name is Cebile Mlotsa (Student Number 488002), and I am a Masters Student at the University of the Witwatersrand, Johannesburg. My Supervisor is. Dr. Precious Biyela. I am conducting a research study about South Africa's response to informal settlements. The study title is *"The impact of South Africa's response to informal settlements and affordable housing development when compared to the responses adopted in India and Brazil"*.

As part of the project, I am inviting you to take part in a semi structured interview. If you decide to take part in the interview, it will take approximately thirty (30) minutes to one (1) hour. The interview will be conducted via Microsoft Teams (Online interview) at ___H___ on the ___th day of _____ 2023.

With your permission, I would like to audio record the interview. I will store the recording in a password protected personal laptop, and I will delete it after 1 year. Only the researcher will have access to the data. The interview will be confidential and anonymous. When I share the results of the research study, I will not include your name or anything else that could identify you.

During the interview, I will ask questions about the work you do towards informal settlements, including the strategy of your work (e.g. to upgrade in-situ, or construct new housing for relocations), the areas in which you find challenges, how you spend most of your project time or budget etc.

If you decide to take part in the research study, it should be because you want to volunteer. You do not have to participate in the study. You can opt out of participating in the study at any time. You do not have to answer any questions if you do not wish to. You will not obtain direct benefits if you choose to participate in this research study. You will not lose or any services, benefits or rights you would normally have if you decide not to participate in this study. Your participation in this research study will be done at no cost to you. You will not be paid for participating in this research study. The risks for this research study are no more than what you would experience in your everyday life.

This research study will be written up as a research report. The report will be available on the university library website. If you would like to receive a summary of this report, I will be happy to send it to you.

If you have any questions during or afterwards about this research study, feel free to contact me or my supervisor on the details listed below. If you have any concerns or complaints about the ethical procedures of this research study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours Sincerely

Researcher:
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Research Supervisor
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ANNEXURE C: PARTICIPANTS CONCENT FORM



UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

School of Civil and Environmental Engineering

MSC Research Project Consent Form

Name of Researcher: Cebile Mlotsa

The impact of South Africa's response to informal settlements and affordable housing development when compared to the responses adopted in India and Brazil

I _____ agree to participate in the research study and I confirm that I have agreed to the following:

The researcher has explained the purpose of the study to me. I understand what this study is about.	YES	NO
I understand that my participation in this study is voluntary.	YES	NO
I agree that the researcher may audio record the interview.	YES	NO
I agree that the final research report by may contain direct quotations from my interview.	YES	NO
I agree that my participation will remain anonymous (my name or other identifying data will not be used by the researcher in their research report.	YES	NO
I agree that other researchers may use the information I provide in my interview (depending on their own ethics clearance being obtained) but my name and any personal information will not be used or passed on.	YES	NO

Participant :

Name_____

Signature: _____

Date:_____

Researcher:

Cebile Mlotsa

Signature:_____

Date:_____

ANNEXURE D: INTERVIEW QUESTIONNAIRES

Interview Questionnaire for Professionals from Municipal and Provincial organizations and NGOs

1. May you describe the work you do and how you work towards addressing informal settlements in South Africa?
2. What is the most important strategy that has been adopted by your organization towards addressing informal settlements?
3. What are the kinds of informal settlements that are recognized by your organization? Does your organization recognize inner city high-rise buildings as informal settlements when they are illegally occupied or when they are occupied but deemed unsafe by housing authorities?
4. How does your organization prioritize the informal settlements that require interventions? For Example, how do you determine that settlement A requires urgent intervention, and settlement B is not a priority and will require intervention in the long term?
5. What does your organization spend a lot of funding / time on in informal settlements: e.g., Constructing new affordable houses or upgrading and proving infrastructure in informal settlements?
6. Tell me how you think the current strategy is working well?
7. Tell me how you think the current strategy can be improved?
8. What are the forms of tenure that your organization uses to grant residents of informal settlements security or tenure?
9. How important is public participation, especially of the affected communities in the processes that you adopt to intervene in informal settlements?
10. Over the years, as you have worked with informal settlements, have you observed any differences in them? How have these settlements been changing with time?
11. Does your organization tailor its interventions for the different types of informal settlements or do you only focus on implementing just 1 strategy? What are the strategies you adopt for the different informal settlements? How does the approach affect the effectiveness of the interventions?

12. Do you know strategies adopted towards informal settlements in other countries that we do not adopt in South Africa? What do you think of the fact that we do not use them in South Africa?

13. In India, the government has a mixed funding method, where the government pays a portion of funding for the housing development, and the residents pay a smaller portion. Do you think this could work in South Africa?

14. In India, they use Floor Area Ratio relaxations and Transferable Development Rights (TDR) to encourage the private sector to develop informal settlements. Do you think this could work in South Africa? Are you aware of instances in which similar strategies are adopted in South Africa.

15. In Brazil, their legislation is that the settler owns the land if they can prove (through voting registration rolls) that they have settled on the land for at least 5 years without any complaints for the original landowners. Do you think this would be good to implement in South Africa? Why?

16. Do you think the strategy you organization encourages or discourages public participation? Explain how.

17. How does your organization obtain funds for the work you do towards informal settlements?

18. What innovative new changes have you seen underway in your organization or in other organizations within South Africa in the response towards informal settlements?

19. The City of Johannesburg adopted an Inclusionary Housing Policy in 2020 that requires private developers to invest in affordable housing development as well. Have you heard of this policy? Does your organization have any similar policies?

20. India has a model for funding informal settlement upgrading projects where the national government provides 75% percent of the funds, the local government provides 20%, and the households benefiting from the project provide 5% of the funds. Have you worked on projects with a similar model? If not, do you think it would be suitable for adoption in South Africa?

Interview Questionnaire for Academics researching informal settlements:

1. May you describe the research you do and how it contributes towards addressing informal settlements in South Africa?
2. What do you think is being prioritized in South Africa towards addressing informal settlements.
3. Tell me how you think the current strategies are working well?
4. Tell me how you think the current strategies can be improved?
5. Over the years, as you have worked with informal settlements, have you observed any differences in them? What are the kinds of informal settlements you know? How have these settlements been changing with time?
6. Do you think there is a concerted effort to create specific strategies for the different types of informal settlements or are we only looking at just 1 strategy? How does this affect the effectiveness of the interventions.
7. Do you know strategies adopted towards informal settlements in other countries that we do not adopt in South Africa? What do you think of the fact that we do not use them in South Africa?
8. In India, the government has a mixed funding method, where the government pays a portion of funding for the housing development, and the residents pay a smaller portion. Do you think this could work in South Africa?
9. In India, they use Floor Area Ratio relaxations and Transferable Development Rights (TDR) to encourage the private sector to develop informal settlements. Do you think this could work in South Africa? Are you aware of instances in which similar strategies are adopted in South Africa.
10. In Brazil, their legislation is that the settler owns the land if they can prove (through voting registration rolls) that they have settled on the land for at least 5 years without any complaints for the original landowners. Do you think this would be good to implement in South Africa? Why?