



**Cosmo City Greens: Contested aspirations of
ecologically sustainable lifestyles in mixed-income
housing**

by

Sinazo Funde

FNDSIN001

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Supervisor: Dr Anna Selmeczi

MPhil Southern Urbanism

Department of Environmental & Geographical Science

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Abstract

This thesis is concerned with the relationship between the residents of Cosmo City, a mixed-income housing development in Gauteng, and green spaces in the development. It argues that the legacy of apartheid spatial planning has led to the unequal distribution of green infrastructure across the development, and this has disenfranchised the low-income residents.

Segregation was the core of maintaining the apartheid regime. South Africans were not only divided according to race, culture and economically, but they were also divided spatially and so was the provision, proximity, and distribution of services. This segregation primarily affected the Black population negatively, as they were the ones moved to the outskirts of urban centres with little to no access to tenure or basic services. Access to green spaces was also limited as the history of South Africa was immersed in the displacement of the indigenous people out of their homes that honed their relationships between culture and nature. High economic status and access to green spaces have a positive relationship especially in the housing space. But what happens in the case of mixed-income developments?

Since the change from apartheid to democracy, South Africa has implemented many housing plans and policies to undo fragmentation caused by apartheid spatial planning. Many of these plans failed over the course of implementation but their revision continues. Mixed-income housing policies have gained momentum in urban planning, especially in southern cities. These policies potentially not only bridge racial and economic disparities but they also confront issues of fragmented environmentalism through housing developments.

South Africa's first mixed-income housing development, Cosmo City in Johannesburg has been the blueprint for many other mixed-income developments in the country. Cosmo City was successful in fulfilling its objectives of bringing people from the different socioeconomic backgrounds into the same neighbourhood. However, its objectives of promoting

environmental sustainability across the development have not been realized. This research uses the stories of a group of middle- and low-income residents of Cosmo City as a case study to investigate the potential of mixed-income housing in South Africa to address the legacies of green apartheid through the equitable distribution of green infrastructure in mixed-income housing spaces. By investigating residents' greening aspirations, this research explores the ways in which the equitable distribution of green infrastructure in such developments can contribute to more egalitarian approaches to sustainability and facilitate social inclusion and cohesion among the residents.

Qualitative research methods and desktop research were used to achieve the objectives of the study. A case study was conducted, which included regular visits to Cosmo City and open-ended interviews conducted with residents and an environmental officer from the developing company. The findings show that inequalities in the distribution and quality of green infrastructure in Cosmo City have led to reinforcing negative stereotypes and suppress the livelihoods of low-income residents. In response, some residents have adopted diverse ways of breaking with the past through self-taught greening practices, even in complex situations that have already been pre-established for them. The recommendation which is made by this thesis in order to promote a more holistic idea of environmental sustainability in mixed-income housing, is that stakeholders must understand the socioenvironmental dynamics of low-income residents in their respective urban spaces to accommodate their ecological needs.

Key Words: Green Infrastructure, mixed-income housing, public green spaces, green apartheid

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List of Acronyms

Breaking New Ground (BNG)

Department of Foreign Affairs (DFA)

Growth, Employment and Redistribution (GEAR)

Inclusionary Housing Policy (IHP)

National Environmental Management Act (NEMA)

National Policy on Inclusionary Housing (NPIH)

Reconstruction and Development Programme (RDP)

Public Green Spaces (PUGS)

Spatial Planning and Land Use Management Act (SPLUMA)

Chapter 1: Introduction

Background and Context

Urban ecology in South Africa has always been a contested space. The effects of apartheid have disenfranchised non-White South Africans, especially Black South Africans, who are the subjects in this research. There has been a long history of the displacement of marginalized groups from their ecologically rich homes to the outskirts of urban centres with little to no ecological resources or basic services due to colonialism. In her book *Rock, Water, Life*, Lesley Green (2020) provides a thorough description of the displacement of the Khoena people from Table Mountain by the Dutch in the mid-1600s to early 1800s. The book describes the intimate symbiotic relationship that the Khoena people had with their natural surroundings and the culturally embedded lifestyle practices they cultivated to ensure that both humans and nature benefited from human-nature relations. The separation of the Khoena people from their homelands into foreign, barren lands which were not able to sustain them, catalysed their inability to survive in those environments (Mellet, 2017).

In South Africa and most of the world, colonialism birthed the marginalization and displacement of people from their *natures*, while capitalism and neoliberalism fostered the privatization and commodification of nature to prevent people who cannot pay from accessing it (Green, 2020). Even the little public natural spaces that are available in South Africa are only accessible to a few people who are considered to be worthy of residing in ecologically friendly spaces based on their economic status which, in the South African case, is primarily racialised (Bigger & Millington, 2020).

As a lasting consequence of apartheid, the population in South Africa is divided both racially and economically. These divisions materialise through spatial fragmentation due to the planning system in South Africa which still reflects those of the apartheid state. This is visible

in the location, layout and condition of housing developments that accommodate differently raced and classed people. According to (Haferburg, 2013, p. 262) “Government builds homogenous RDP housing for the poor (almost exclusively Black) and private sector developers build gated villages for the rich (largely but not exclusively White).” [Figure 1](#) [Figure 1](#) shows the locations of gated communities in Gauteng, with the majority being gated estates and enclosed neighbourhoods located on the northern parts of Johannesburg.

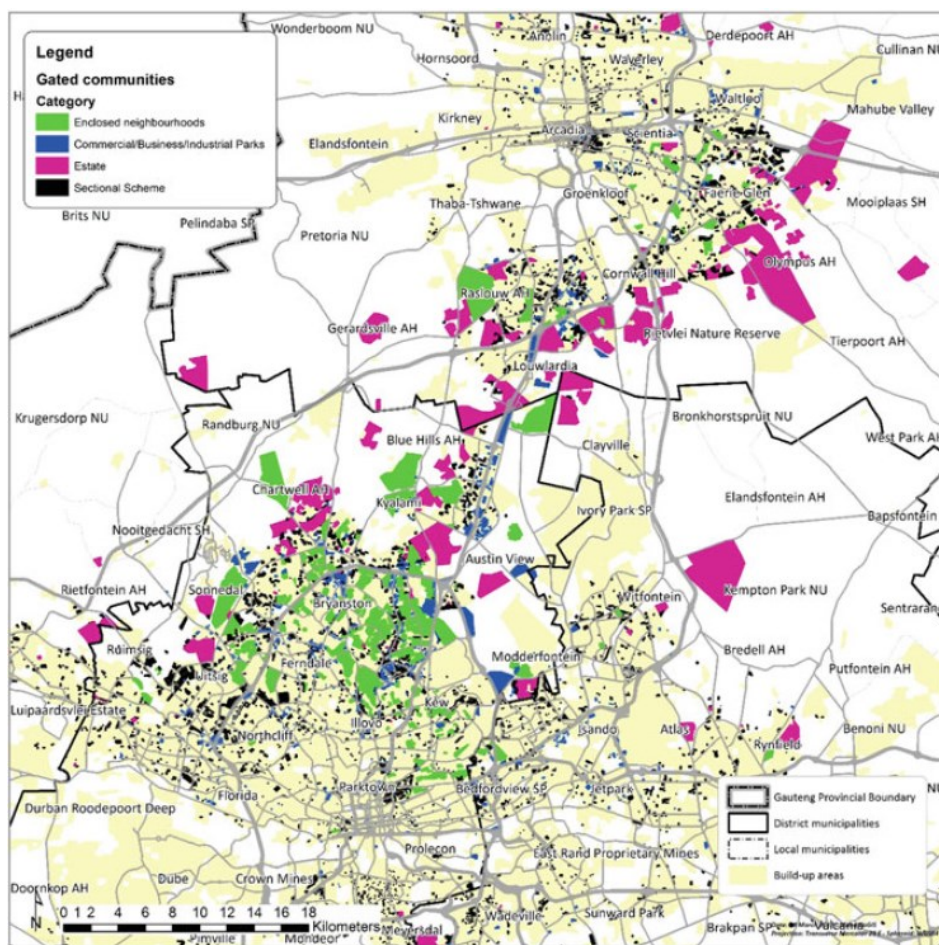


Figure 1: Distribution of gated communities in Gauteng (Landman, 2020, p. 56)

The post-1994 plan to restructure the housing landscape in South Africa produced many plans and policies to accommodate marginalised citizens and to redistribute previously White owned assets across race and class and through spatial development. State housing for poor people is referred to as RDP (Reconstruction and Development Program). This was the 1994 policy framework which was used to promote tenure among poor Black South Africans and to

promote social and economic growth among Black communities after their disenfranchisement by the apartheid government. After the RDP, there were several other laws and policies that were produced to improve the quality of public housing, they are discussed in more detail in chapter 3. These included the Housing White Paper (HWP) of 1994, the Constitution of South Africa of 1996, Housing Act of 1997, Breaking New Ground (BNG) of 2004, Inclusionary Housing Policy (IHP) of 2007, Integrated Residential Development Program of 2009 and Spatial Planning and Land Use Management Act (SPLUMA) 16 of 2013.

For the purposes of this research, the legislation of housing that is discussed is the BNG policy as the case study was the first development to materialise from that policy. The policies implemented post-2004 will, however, be referenced in the discussion to highlight the strengths and shortfalls of low-cost housing in South Africa.

BNG was the first housing policy to produce the concept of mixed-income housing and to develop a plan for a housing project that embodies its objectives of inclusivity as well as Cosmo City. Although other policies were fabricated subsequent to the BNG, other objectives that were overlooked, such as the environmental aspects of the development, contributed to the dissatisfaction of scholars, planners, and residents with the development (Haferburg, 2013; Adegun, 2016; Adegun, 2018). There is growing body of literature on relations between the access to green spaces and its impacts in low-income spaces in South Africa (Green, 2020; Shackleton and Gwedla, 2017). A comprehensive study of the effects of neglected human ecological needs is needed because the policies lack understanding and consideration of the needs of poor residents in creating and relating to greenspaces in low-income areas, as will be discussed in the context of inadequate green spaces in Cosmo City.

Definition and Explanation of Key terms

The key terms used to understand the urban environment and housing space in this thesis are Green Infrastructure, Public Green Spaces, Mixed-Income Housing and Green apartheid. This section provides an understanding of these key terms and places them in relation to the broader discussion on greening in Cosmo City. As mentioned above, this research investigates the potential for greening mixed-income housing and thus the key terms are used in both trying to help the reader understand the context and to make a case regarding the social and environmental practices in the context of the study area.

Green Infrastructure

Green infrastructure has many different interpretations, as it is a subjective phenomenon, and it can mean different things to different people (Davies *et al.*, 2006, p. 3). Adegun 2016 states that green infrastructure has two main meanings, one being a normative phrase relating to the ideal of green goals and the other a noun representing a phenomenon which is green spaces. The first meaning of green infrastructure refers to environmentally sustainable approaches in the delivery and operation of infrastructure and services (Adegun, 2016). This means minimising the damage done to the environment when maximizing its benefits during the construction and operation phases of the use of material and energy (Adegun, 2016). The second definition of green infrastructure refers to tangible ecological resources such as green spaces, natural features and productive natural landscapes that provide benefits for humans (Davies *et al.*, 2006; Adegun, 2016; Venter *et al.*, 2020). According to Davies *et al.*, (2006, p. 3), "*Green infrastructure is the physical environment within and between our cities, towns, and villages. It is a network of multi-functional open spaces, including formal parks, gardens, woodlands, green corridors, waterways, street trees and open countryside. It comprises all environmental resources, and thus a green infrastructure approach also contributes towards sustainable resource management.*" However, green infrastructure can be unsustainable depending

on how it is managed and used, for example if the wrong trees or plant species are planted, if chemical fertilisers are used and when practices become too resource intensive, for example extensive water usage (Cilliers, 2019; Shackleton and Gwedla 2021). The unsustainability of green infrastructure may arise from the unpredictability of ecosystem and resource management strategies, the exploitation of natural resources, a lack of knowledge on how to manage and care for plants and other forms of green infrastructure or a rejection of indigenous environmental knowledge (Moir and Mowrer, 1995; Gonzalez, 2015).

Some of the common scholarly themes of defining green infrastructure include natural and man-made green areas in both rural and urban spaces; the connection of open green areas, this can be public or private strategic planning; green infrastructure also provides multiple benefits for people and other living organisms (Davies *et al.*, 2006; Adegun, 2016; Venter *et al.*, 2020).

Mixed-Income Housing

Mixed-income housing developments are a growing addition of larger cities in South Africa (Irvine, 2021). Mixed-income housing was introduced through the Breaking New Ground (BNG) program and similar to green infrastructure, they can also be interpreted differently. According to Onatu (2010), mixed-income housing developments refer to housing developments that combine market-rate and public assisted units for residents earning above-average incomes to very-low incomes. Some developments have both fully subsidised low-income housing, rental housing or rent to purchase housing for the ‘gap’ market, and affordable housing for the private market (Lukhele, 2014). The income range and approaches mixed-income housing are discussed in detail in Chapter 3.

Public Green Spaces (PUGS)

PUGS are interwoven through urban space. They include parks, trails, nature reserves, forests, and other green recreational areas. PUGS are generally maintained by the municipality along with a community leader who monitors the condition of the space from the ground. These are

spaces that are financed through public funds and are available for anyone to access and enjoy. Scholarship on PUGS in South Africa shows that PUGS are unevenly distributed across race and income categories. Low-income areas have a lower PUGS coverage than high income areas (McConnachie & Shackleton, 2010; Venter *et al.*, 2021; Lemanski, 2020).

Green Apartheid

This term was coined by Venter *et al.* (2020) and it describes the decline in the proportional area of PUGS in townships and rural areas since the advent of democracy in South Africa 28 years ago. In contrast, the term also highlights how, in affluent, predominantly white neighbourhoods, the proportional area of green spaces has remained the same or increased. Venter *et al.* 2020 further states that living in proximity to PUGS is a privilege that is enjoyed and afforded to affluent citizens, who in South Africa are predominantly white, increasing the stratification of access to green infrastructure by both income and race (McConnachie & Shackleton, 2010).

This study attempts to empirically root and foreground the notion of equitably greening mixed-income housing in the context of South Africa, using Cosmo City, a mixed-income housing development in Johannesburg as a case study. Johannesburg is South Africa's largest city, and it is the prime example of urbanisation trends and patterns in the country.

Problem Statement

Apartheid resulted in distorted relationships with the environment for the poor residents of South Africa and, as such, green spaces are not easily available for people living in low-income areas. Access to land, housing, and basic services such water and sanitation is already challenging for the average South African citizen. Green infrastructure, such as parks and recreational areas, are nearly non-existent in these spaces Venter *et al.*, (2021) have conducted various studies across low-income areas South Africa, investigating the importance and

benefits of ecosystem services and the relationship of ecosystem services to socioeconomic characteristics. These studies stress the need for adequate attention to be paid to environmental issues in low-income areas, and for researchers and government officials not to overlook the efforts made by poor residents to produce their own green spaces in their homes and communities (McConnachie & Shackleton, 2010).

Research Objectives

This study intends to understand how the interactions of the residents of Cosmo City with the natural environment influence their attitudes towards each other and how they view/look at the city.

- To understand how green infrastructure is distributed in households within the Cosmo City development.
- To investigate whether the presence or lack of green spaces affects residents' attitudes towards their public and private spaces.
- To understand if and how social cohesion in Cosmo City is limited or facilitated through the distribution of green infrastructure.

This is achieved by collecting the stories of a small sample of residents from the different sections of Cosmo City focusing on their interactions and encounters with the greenspaces in the development; how these were produced and nurtured, and how they influence their attitudes towards their living environment and other residents.

Methodology

This section outlines the methods used to investigate how the Cosmo City Development has become a space of contestation for some of the residents. It discusses the approach taken to

conducting the research, the research design, population, sample and methods of sampling and the instruments that were used to conduct and complete the research.

Research Design

To address the objectives of any research, a research design is crucial (McDonald, 2002). A research design is a plan of investigation that is used to acquire evidence for answering questions. Due to the nature of the project requiring first-hand information regarding the livelihoods of the residents of Cosmo City, a case study was the primary form of methodology used for the research (Stake, 1995). The case study captured the realities of living in a mixed-income housing development from the perspectives of the residents who were interviewed. The development went through a series of planning stages before its construction, therefore the preparations for the construction of the site, the relocation of residents and the maintenance of the overall development were designed and drafted from the perspectives of the policy makers, developers, city officials and other stakeholders. Hence communicating with residents was crucial for this project in understanding the failures of greening a mixed-income housing and facilitating spatial integration through skewed sustainability principles. The personal stories of the residents of the development coupled with the insight from the environmental officer involved in this research gave the researcher the opportunity to gain a more grounded understanding of the development.

Methods and Materials

Various tools and qualitative research methods of conducting research were used to acquire data for the project. Qualitative research is defined as knowledge claims which are based primarily on individual meanings, experiences, to develop a theory or pattern. In this project, such tools included interviews, field-observations, and archival research.

Sampling

Sampling means acquiring information from a smaller portion of a larger group with the aim of generalizing about the larger group (Rice, 2010). This method was chosen because the timeframe and resources of the research, along with the impact of the COVID-19 safety and lockdown restrictions impeded on the ability of the researcher to obtain information from a larger sample of the population of Cosmo City. Therefore, a smaller number of people were chosen for the study. Despite the smaller number of interviews, the stories and experience recounted in them are still highly informative of the concerns of this thesis as all interviewees have been disadvantaged by the legacy of environmental apartheid; they are the people whom the mixed income and environmentally sustainable character of Cosmo City was supposed to offer redress in this regard.

Altogether 10 residents were interviewed from different locations within the development. The sample was random, and dependent on availability of the residents and time of the researcher in the field. Key informant interviews were conducted with two main respondents, who then introduced the researcher to more residents in the development. The key informants were well informed on the social and environmental processes and changes taking place in the community. A separate, virtual interview was conducted with the environmental officer from Basil Read. The interviews took place within the months of February, March, and April 2021.

Non-participant observation

Several transect walks were taken with the residents of Cosmo City to assess the distribution of green infrastructure in the development and to understand how the residents interacted with and gave meaning to the green spaces in the different sections of the development.

Semi-Structured Interviews

Semi-structured interviews are interviews that are left open for the interviewer to adjust according to the themes emerging in the conversation with the respondent. This method allows

for the exploration of livelihoods and lived experiences, which is what this research aimed to do with the collection of stories from the residents (Galletta, 2013). The interviews consisted of open-ended questions which lasted for about an hour each, to allow the respondents to elaborate freely on their thoughts, experiences, and observations of living in Cosmo City. There are two broad themes discussed in the interviews, the first was the personal background of the participants guided by questions such as:

- Where are you from?
- When did you move to Cosmo City?
- Where do you work? And
- What do you do on your days off?

The second question was related to the resident's relationship with the environment, and covered questions such as:

- Do you ever go to the park?
- When did you start working on your garden?
- What plants do you grow? And;
- What would you like people to see when they look at your garden?

A questionnaire was presented to each the resident before the interviews were conducted. The questionnaires were used to guide the semi-structured interviews conducted for this research. In the case of residents who were not interested in reading the questionnaire or residents who could not understand the content, the researcher provided verbal explanations of the questions during the interviews.

Data organization and analysis

A thematic analysis methodology was adopted to systematically organize and identify patterns of meaning within the themes that emerged from the interview data. The raw data was managed

through a reorganization of coded files (hard copy documents and audio recordings turned into softcopy and existing within Microsoft Word). This process allowed the researcher to identify collective sentiment patterns shared by the residents towards key topics during the interviews and then make sense of them from a collective and individual point of view (Braun & Clarke, 2012).

Validity and Reliability

Hamersley (1987) describes validity as the process of signifying research methods. Reliability is the goal of the research process, to use the research tool with the faith that it can control random errors to some degree when obtaining data. The interviews with the residents were recorded and transcribed. Thick descriptions of the fieldwork findings were used to provide background context, provide accuracy, and to preserve the meanings of the information collected from the residents. With the use of the same research tools, another researcher would be able to come to the same or similar conclusions as the ones made in this study.

Research Ethics

All the documents used to facilitate the fieldwork for this research were reviewed and approved by the UCT Ethics Committee for the Faculty of Science at the University of Cape Town. Permission to conduct interviews with the residents of Cosmo City was obtained through verbal and written communication with them. The Environmental Officer was contacted through e-mail and the interview took place telephonically due to Covid-19 regulations and the closure of their Cosmo City office.

Limitations

The most visible limitation to the study was the inability to move freely around respondents and the reluctance of many potential respondents to participate interviews due to the COVID-19 pandemic. This constrained the researcher because access to virtual and sometimes even

telephonic interviews was nearly impossible for the study because the researcher dealt with a predominantly low-income population and did not have the means to provide them with the necessary resources for virtual engagement in the research.

Covid-19 Regulations

Due to the COVID-19 pandemic that encapsulated the world in early 2020, there were many restrictions and regulations regarding physical contact with other people. However, the nature of this research allowed for interviews to be conducted in outdoor spaces, mainly residents' gardens and open public spaces which allowed for adhering to the COVID-19 regulations.

It must be noted that this research engages with residents from all the different housing typologies which are present in Cosmo City. Although the focus is on the experiences of low-income residents of the RDP section, residents from the bonded housing and subsidized housing were interviewed to gain insight into the heterogeneity of the relationships which have blossomed between the residents of Cosmo City and the environment. As stated in the following chapters, black people in South Africa are the most disadvantaged by the legacy of apartheid, however, as the country develops, there has been a reconstitution and de-racialization of privilege post-apartheid, as black people who now fall under the middle-class category are gaining more access to resources which enable them to enjoy similar privileges to white people in South Africa (Burger *et al.*, 2015; Mattes, 2015). This includes, amongst a myriad of other things, access to green spaces discussed in Chapter 2.

As presented in Chapter 3, Cosmo City was intended to be inclusive and support the social, ecological, and economic sustainability of the development and all its people. The development has an almost exclusively black population who live in different social and economic conditions due to the layout of the development and the different class categories which the residents are classified as. Therefore, the experiences of residents in Cosmo City vary depending on their locatedness within the development due to the diversified levels of access to financial and other resources (Southall, 2016).

Although a small sample of residents from each of the different sections were engaged, this is not representative of all black people in South Africa, and especially not of all the residents of Cosmo City. The aim however is to show an existing pattern of disenfranchisement through the unequal distribution of green infrastructure which is supported by urban scholarship as discussed in the chapters to follow.

Overview of the thesis structure

Chapter 2, which follows, discusses the literature mobilized in this thesis on public spaces and housing in southern cities, with a specific reference to mega-projects and their critiques. Chapter 2 also discusses the need to bring more narratives of the environmental practices of poor people to the forefront to aid in policy and planning for ecological spaces in poor communities. **Chapter 3** then discusses the housing environment in South Africa, specifically mixed-income housing in Johannesburg, and locates Cosmo City, the case study, within the broader discourse of mixed income housing and environmental sustainability. **Chapter 4** presents the findings of the study from the narratives of the residents interviewed and the site visits to Cosmo City. This chapter is grounded within the objectives of the study, which are to find out how the residents of the RDP and bonded sections of Cosmo City relate to green spaces and how that has affected residents' relations and perceptions towards one another. The residents referred to in this chapter are primarily the low-income residents of the RDP houses, that is, those who have previously been affected by the inadequate distribution of green spaces in spatially segregated apartheid cities. However, the research also included residents from the bonded and subsidized sections. These residents were included to provide a broader sense of the experiences with green infrastructure outside of the low-income areas. As discussed in the chapter, especially in the case of Cosmo City, RDP houses are provided by the government to poor households, they have a standard architecture and are generally located in peripheral parts of the city. Subsidized housing is also built and financed by the government to low and lower middle-income households who earn more than the R3500 required to qualify for an RDP house but less than the R22 000 required to qualify for a bonded house.

Chapter 5 concludes with the merging of findings with the literature presented in Chapter 2 and 3. This chapter mainly highlights the shortcomings of Cosmo City and shows how the

residents of the lower income sections have managed to create and maintain livable spaces where the municipality and developers have fallen short of delivering their promises.

Chapter 2: Public spaces and public housing: Accommodating a growing African population

Within the urban context in the global south, space is a contested and complicated concept. In academic writing, space can be defined as an abstract discourse on matters of public concern or as a physical, concrete public space such as a city or town (Goodsell, 2003; Neal, 2010).

Space also has social and political implications that are often tied to its importance to democratic life and its forms of exclusion and empowerment, as well as understandings of its degradation due to processes of modernity (Goodsell, 2003; Neal, 2010). Urban space is occupied, changed, and governed differently by the many agents that inhabit it. For example, countries across the world have different ways of governing and distributing urban spaces, and the ways in which space is governed may not be coherent to the ways in which space is lived. The concept of “gray space” by (Yiftachel, 2009) describes the in-between processes of state governance and the destabilizing processes of the citizens that either incite political conflict or social transformation. Gray spaces are also seen in policy, as policy is the blueprint of the city or urban space, and thus they create or indirectly produce unequal spaces which end up being spaces of contestation, conflict and or oppression (Yiftachel, 2009).

There are many conceptualizations of southern cities many which homogenize the geopolitical organization or disorganisation of urban processes in the southern regions of the world (Roy, 2011; Yiftachel, 2009; McFarlane, 2012; Brenner & Schmid, 2015). One such term which is commonly used by urban scholars is the term “global south.” In a celebration of the multiple accounts of research that scholars have undertaken to represent southern cities, Oldfield, and Parnell (2014) emphasize the importance of recognizing the unique processes of change which occur in local urban setting and how they affect the global urban condition. The book discusses terms such as “ordinary”, “mega”, “global” and “peripheral” cities and highlights the

collaboration, diversity, inclusion, and social change which has been achieved through problematizing the alignment and definition of the global south within the field of urban studies.

Inspired by Oldfield and Parnell (2014), this research, this chapter in particular, uses the term “global south.” The use of this term does not suggest or impose any particular meaning to define the nature of southern cities of the people who live within the southern hemisphere. It is used to locate both the empirical and theoretical standpoints of this research. Many definitions are provided in this chapter, however, the position which is borrowed in this research is that of Oldfield and Parnell (2014) which uses the lowercase text as a non-prescriptive way to emphasize the myriad of definitions which exist and the manner in which they are used by scholars.

Cities of the global south have been described as ordinary cities (Robinson, 2008), mega-cities (Amin, 2000), global/world cities (Robinson, 2002), and peripheral cities (Caldeira, 2015) due to the multiple perspectives and realities of planning for public spaces that they manifest, as well as to understand their positions and functioning within the world economy (Robinson, 2002). Attempts to govern urban space in these cities, in dominant urban studies and policy discourse, have previously followed the developmentalist route of adopting Western-derived approaches to understanding and planning for rapid urbanisation in southern cities (Pieterse, 2011; Oldfield & Parnell, 2014).

One of the main narratives about African cities in the 21st century is the one of “Africa rising” (Pieterse, 2011; Watson 2014. Watson, 2020). This is the recognition of the rapid economic, social, and political growth in African spaces and this rapid growth in the African population follows that of Asian countries such as India and China which experienced rapid urbanization and development in the late 20th century. Africa has been considered the second-fastest growing population and workforce since the rise of Asia (Pieterse, 2011; Watson 2014). This

growth demands mass urban planning projects and investment in infrastructures; hence the urban property market has been thriving in African cities such as Cape Town, Johannesburg, Kinshasa, Nairobi, and Accra (Watson 2014; Hannan & Sutherland, 2015). Much of Africa's urban areas are populated with shanty towns and auto-constructed residential areas, where the presence of the state is fragmented, and urbanites are left to create their own systems and logics of governance (Parnell & Pieterse, 2010; Caldeira, 2017; Simone & Pieterse, 2018).

Plans and policies developed to accommodate a growing urban population mirror those of developing cities such as Dubai, Singapore, and Shanghai; they were not necessarily developed to fit specific African urban contexts (Haferburg, 2013; Watson, 2014). In southern cities, public and private sector property investments are still characterized by colonial legacies of spatial division (Turok, 2016; Watson, 2020). Private developments are on well located land; they are often gated and spacious enough for its residents to enjoy all its amenities without being in the presence of the broader public. Urban spaces in the South are marked by urban sprawl, criminal activity and poverty, attributes that are widely discussed in urban scholarship, often depicting very dystopian and narrow developmentalist narratives of the African urban experience (Simone, 2004; Pieterse, 2011; Watson, 2014). It should be noted that pessimistic visions of the African urban experience are as valid as those representing a utopia, however, it is common in urban scholarship and media representations to depict only the negative side of the African experience (Pereira *et al.*, 2021).

Africa's urbanisation phase differs from that of Europe and North America in that over the next forty years, the African population is expected to be much greater (1 billion) than that of Europe and North America and this will take place in half the time it took for the northern regions to urbanise (Cartwright, 2015). In other parts of the world that have been urbanising at similar rates, economic growth and job creation positively affect each other (Watson, 2020). However, Africa has taken a different trajectory. Sub-Saharan Africa has amongst the highest poverty

rates in the world, as measured by the Gini coefficient (Watson, 2020). The informal economy has become the principal means of livelihood for most of the developing world, accounting for 66 percent in Sub-Saharan Africa, 45 percent in the Middle East and North Africa (UN-HABITAT, 2020).

Migration to cities poses major threats and puts pressure on services such as healthcare, education, sanitation and increases pollution (Rogge, 2020). For decades since African countries gained independence, plans and policies have been put in place to manage rural-urban migration (Njoh, 2009). Pieterse 2011, argues that urban-rural migration is still seen as an unfortunate event by many African states. This is because the policies used to guide decision making often become incentives to invite even more rural residents into urban areas. While migration is inevitable because people move through spaces and places to find resources to sustain themselves, states still try to suppress it, causing major human rights and infrastructural issues in the process (Gallagher, 2015; Nel, *et al.*, 2021). For example, in South Africa during apartheid and the spatial segregation it imposed, the government stopped providing housing for black people to discourage rural-urban migration, this caused major infrastructural and environmental issues such as poverty, densification, overpopulation, pollution, congestion and promoted the development of informal settlements (Irvine, 2021; Nel, *et al.*, 2021; Turok *et al.*, 2021).

Mega-projects in Africa

As the African population is growing, there is a desperate need for the introduction of more infrastructural resources that accommodate the existing multiplicity of formal and informal livelihoods as well as cultures that exist in these African urban regions (Turok, 2016; Todes & Turok, 2018). At the same time, the policies need to factor in the changes in social organisations and plan accordingly for the future urban residents of Africa while accommodating existing infrastructure (Turok, 2016). Policies take different approaches

regarding the best ways to tackle migration and issues that intensify inequalities in African cities, and they are influenced by the extent to which population growth should be accommodated (Turok, 2016; Todes and Turok, 2018). As mentioned above, migration is inevitable, however, governments must take initiatives to develop policies that mitigate migration issues but do not infringe on the rights of people (Gallagher, 2015).

Mega urban projects by multinational corporations to develop cities have become the dominant form of planning and has been blatantly incorporated into national legislation, thus legally justifying the displacement of peripheral communities (Goldman, 2010). Although these developments claim to be beneficial to all the people in society, they mostly benefit the people who can afford to live in these spaces because the poor citizens become subject to gentrification, displacement, and homelessness (Goldman, 2010; Wolch, *et al.*, 2014; Bhattacharyya, 2019).

According to Zidane and Johansen (2013), “Mega-projects can be seen as the wild beasts in the project world, they are hard to tame, known for their complexity, vast size, expensive cost, and long-time frame. These projects bring big changes in the geography of countries and life of people. Some of these Mega-projects become landmarks for a country and bring significant prosperity, but some become unforgettable catastrophes” (, p. 349).

Examples of these Mega-projects are “The Kigali Conceptual Master Plan 2040” in Rwanda, a very European inspired, modern, and business-friendly development which clearly represented the objectives of the Rwandan government to provide adequate land (Watson, 2014; Burns, 2021). In Kenya, The Nairobi 2030 Metro Strategy aimed to make Nairobi “a world class African Metropolis.” There is a current urban fantasy Mega-project in Senegal called Diamniadio Lake City, a new satellite city that was approved in 2013 and is expected to be finished by 2030, this project is also anticipated to aid in Dakar’s issue of overcrowding and congestion (Watson, 2020).

According to Watson (2020) and Burns (2021), these Mega-projects focus on economic growth and attracting local and foreign investors. What they have in common is the blueprint of being ambitious cities that tend to neglect the needs of most of the African population living in poverty and as a result end up being exclusionary (Watson, 2014). By portraying a clean and modern appeal, these projects are intentionally clearing poor people from the streets to preserve a modern and world city aesthetic (Watson, 2014 & 2020). Scholars argue that policy makers and scholars should not attempt to erase the lived dynamics of the urban African population but embrace how cities create and maintain different and often unorthodox modes of living (Pieterse, 2011; Caldeira, 2017; Simone and Pieterse, 2018; Watson, 2020).

Mega-projects adopted by international real estate companies influence communication channels with local governments by persuading them to invest in upmarket real estate development that ends up promoting the inequality and exclusion of the urban poor (Watson, 2020). The historical factors of the regions that experience major infrastructural changes are often neglected in the planning processes hence the realities rarely match the objectives (Schmid *et al.*, 2021). Furthermore, the unknown or neglected history of the spaces make it harder to plan for the current population, as the case of South Africa discussed below demonstrates.

Haferburg refers to these postcolonial policies aimed at addressing inequalities as “visionary” and Turok refers to them as a “wasteful duplication” since the socio-spatial dynamics often do not match the political visions for urban developments in these contexts (Haferburg, 2013). Watson (2014) refers to them as “speculative urbanism,” a term adopted from Goldman 2011, referring to the dispossession of people for urban real estate Mega-projects (Goldman, 2011). Mega-projects with environmental objectives also disenfranchise marginalized groups, often taking them out of their ecologically rich spaces into peripheral locations with insufficient or non-existent green spaces (Hannan & Sutherland, 2015, Venter *et al.*, 2020). Therefore,

sustainability and environmental justice often clash with the development objectives of Mega-projects, especially mega housing projects (Hannan and Sutherland, 2015).

In addition, green spaces, public spaces (shared amenities and infrastructures) and living spaces (housing and property) are the most debated and struggled for issues in the global south because they are constantly transformed, produced, and reproduced by the many actors involved (Watson, 2014; Robinson, 2021). These struggles are more prevalent in these spaces due to the colonial legacies of racial and spatial segregation marked by dispossession and colonial spatial planning (Watson, 2013). The post-independence efforts made by local governments to bridge the gap between those who have and those who do not, have been met with a lot of resistance and criticism in urban scholarship and international and local organisations (Haferburg, 2013; Watson, 2014; Charlton, 2017; Adegun, 2018; Robinson, 2021). Critics advocate for more decolonial and anti-western approaches to governing southern cities (Watson, 2014; Robinson, 2021).

The urban context in southern cities and towns is thus markedly different from those in the Global North, as the South is still coming to grips with the multiple urbanisms that are produced in these spaces and intensified by increasing climate challenges (Schmid *et al.*, 2021). Contributing to debates on the political geography of public and private urban spaces in South Africa, this research focuses on the possibilities and limits of undoing spatial apartheid through the distribution of green spaces in mixed-income housing development projects such as Cosmo City, Johannesburg.

Green Urban Spaces

Healthy, functioning social ecosystems, an often-undervalued relationship, has been brought to the forefront of conversations on urban spaces, as a critical component of and contributor to human wellbeing in the global south (Cocks & Shackleton., 2020; Sitas *et al.*, 2021). It also

plays an important role in the distribution of public spaces to promote more equitable and just cities (Shackleton and Gwedla, 2021). The SDGs emphasize the efforts of vulnerable groups and to increase PUGS as spaces of social inclusion and social cohesion. PUGS in urban spaces are an important element as they provide many benefits to human wellbeing, and thus their inclusion in all spaces should be treated as a matter of human rights (Venter *et al.*, 2020). In advocating for more decolonial approaches to managing cities, the concept of environmental sustainability has been infiltrating these conversations and policies for decades because of strong influence by environmentalists and environmental activists (Scheba & Scheba, 2020; Venter *et al.*, 2020). This is due to the increasing human induced risks of climate change called the Anthropocene. In urban planning, green spaces and green infrastructure are regarded as important components of cities and towns (Venter *et al.*, 2020). This is a strategy used to promote urban sustainability, liveability, and climate resilience.

Since policies in countries around the world are aligned to the United Nation's (UN) Sustainable Development Goal 11 (SDG 11) which emphasises equal access to PUGS to amend spatial inequality, there have been many developments, mainly residential, that have environmental sustainability and thus access to green spaces for all, as a core component (Venter *et al.*, 2020). Likewise, researchers have established a positive correlation between green spaces and overall wellbeing in urban areas (Venter *et al.*, 2020). The benefits of ecosystem services associated with human wellbeing include improved air quality, food provision, habitats for biodiversity, water infiltration for recharging aquifers. The physical and mental health of humans indirectly benefit from ecosystem services, along with other societal benefits such as social cohesion, safety, medicine, and a sense of place (McConnachie & Shackleton, 2010; Venter *et al.*, 2020).

The Legacy of Green apartheid in South African Cities

It is important to consider the legacy of colonialism when talking about housing in South Africa and when talking about the political ecology of South Africa. During this period, urban planning in South Africa was highly influenced by the British style, for example Kirstenbosch Botanical Gardens in Cape Town and the botanical gardens in Durban and the introduction of hundreds of plant species from other parts of the world (Shackleton and Gwedla, 2021). The spatial inequalities regarding neighbourhood greenness in South Africa continue to be racialised post-independence, even with legislative efforts to redistribute green infrastructure across neighbourhoods.

The legacies of colonialism and apartheid are spatially significant in this context through the distribution of land, property, and public green spaces (Green, 2020; Shackleton and Gwedla, 2021). This is because in South Africa, economic resources are distributed unevenly across races due to the legacy of apartheid (McConnachie & Shackleton, 2010). This is the same for natural and ecological resources. As mentioned above, there is a strong positive correlation between the presence of green spaces and human wellbeing; there is also a positive correlation between high income and the presence of green spaces, therefore the benefits of ecological resources are primarily experienced by affluent citizens (Green, 2020; Venter *et al.*, 2020; Shackleton & Gwedla, 2021).

Lidström *et al.*, (2016) argue that environmental narratives have become important in environmental humanities. As mentioned with reference to Green's (2020) descriptions above, other environmental humanities scholars have also been taking on projects to collect marginalised groups' narratives of the environment (Agyman, 1990; Katschner, 2013; Finney, 2014; Graham & Dadd, 2021). Katschner (2013) advocates for recognition and acknowledgement of the ways in which processes and connections between humans and nature do not match their neat separation by documenting processes of urban nature conservation and community development in the Cape Flats. In the chapter "Cape Flats Nature: Rethinking

Urban Ecologies,” she refers to instances of institutional nature conservation and how it can impose on marginalised people’s lifestyles and sometime their own ways of conserving and preserving nature, thus, a gardening project in the Cape Flats was a way to challenge conventional approaches to nature conservation and a way to transform the land through changing the mindsets of the residents who occupy the land (Katzschner, 2013).

Many scholars have documented the struggles of marginalised communities to access green spaces. For example, Carolyn Finney (2014) documented the processes of African Americans in nature because they have been historically underrepresented when it comes to their interests and experiences in nature, outdoors and discourses of environmentalism (Finney, 2014). In these writings, the exclusionary practices of environmentalism are brought to the forefront, as well as the racially embedded segregationist approaches to producing, maintaining, representing, and allowing people to be in green spaces (Finney, 2014). These approaches often neglect the many “formal” non-academic related practices adopted by black people and other people of colour in environmentally rich spaces (Agyman, 1990; (Finney, 2014). In South Africa, the racialised multiplicity of natures is called “green apartheid” (Venter *et al.*, 2021).

Venter *et al.*, (2021), as well as Shackleton *et al.*, (2015; 2021) conducted many studies across South Africa, measuring the presence of green infrastructure in cities and towns. Their findings show that the inequalities in green infrastructure present in neighbourhoods have remained since South Africa became a democratic country. The presence of green infrastructure increases by income in both public and private spaces (Venter *et al.*, 2021). High income levels are correlated with spaces accomodating a predominantly white population owing to South Africa’s historical overlap between race and wealth (McConnachie & Shackleton, 2010; Manyani & Shackleton, 2021; Venter *et al.*, 2021). Therefore green spaces are disproportionately more abundant in white areas relative to black areas (Venter *et al.*, 2021).

The following section discusses the embeddedness of sustainability, both as a concept and practice in emerging planning policies in South Africa. Over the past two decades, plans and policies to undo apartheid spatial planning have incorporated environmental sustainability as a critical component to facilitating social cohesion and overall liveability in cities. This literature is particularly important for this dissertation because it speaks to the introduction of environmental sustainability in housing policies, specifically mixed-income housing policies in South Africa.

Living with nature or living in nature?

As a concept, sustainability is stipulatory, but in practice it tends to manifest in contradictory ways as it often clashes with economic development or political objectives (Howes *et al.*, 2017). This concept is often used as a basis for understanding socio-ecological systems and the importance of nature for all urban residents regardless of which social and economic categories they fit into (Gwedla and Shackleton, 2015; Shackleton, 2015; Shackleton and Gwedla, 2021). The implementation of green spaces in cities is crucial for urban planning and policy, hence city projects have been incorporating this aspect into their plans (Venter *et al.*, 2020). As stated earlier in the chapter, South Africa is signatory to many international legislations on redressing spatial, social, economic inequality and promoting environmental justice (Cumming *et al.*, 2017; Venter *et al.*, 2021). The UN's 2030 Agenda for Sustainable Development is embedded into the National Development Plan (NDP) for South Africa (Cumming *et al.*, 2017). The 2030 Agenda focuses on the development and maintenance of healthy functioning ecosystems for poverty alleviation, job creation, health and well-being, food security and the promotion of social cohesion and equality (Summers *et al.*, 2013; Cumming *et al.*, 2017).

[Figure 2](#) below shows the SDGs and the importance of green infrastructure in reaching these targets. Both the 2030 Agenda and SDGs have overlapping themes which address issues of environmental and social sustainability. The 2030 Agenda stresses the importance of people,

prosperity, planet, partnership, and peace to reduce poverty, unemployment, gender inequality, discrimination, and environmental degradation. The SDGs call for more specific development goals within Agenda 2030.

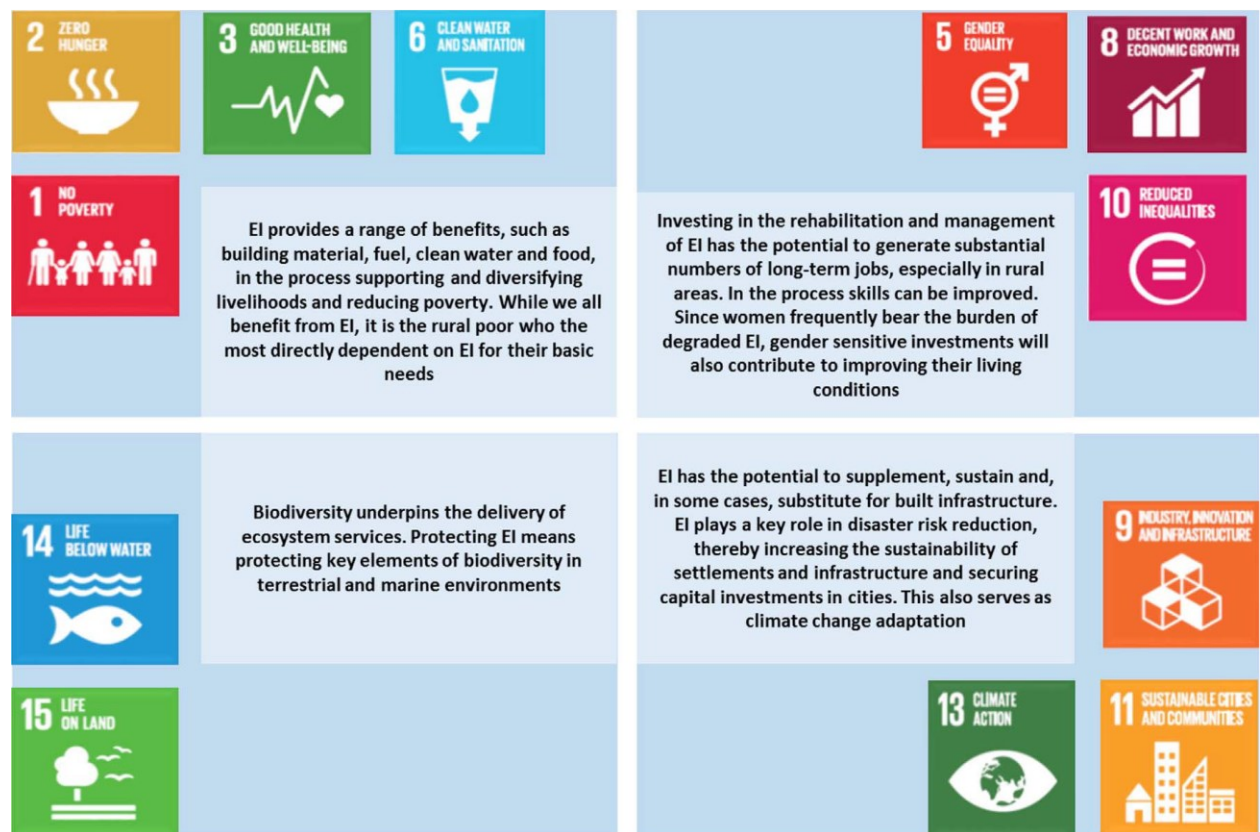


Figure 2: The 15 SDGs and the importance of ecological infrastructure (EI) in supporting their implementation (Cumming, et al., 2017, p. 256).

Green spaces and green infrastructure have many benefits. However, despite the agreement about the benefits of ecosystems to natural wellbeing, the kinds of green spaces introduced in urban areas need to be appropriate to the context in which they exist and meet the needs of the residents (Sutherland *et al.*, 2015; Shackleton and Gwedla, 2021).

Conclusion

Cities in the global south are undergoing intense policy change especially when it comes to accommodating the increasing population and with the current climate crisis that is affecting predominantly marginalized communities. The UN has urged countries to comply with the

SDGs which emphasize the importance of social, economic, political, and environmental sustainability. In South Africa, these goals have been incorporated into the constitution as well as national and municipal legislation to achieve equitable and livable urban areas, and to undo apartheid spatial planning and segregation.

There are clear links between race, income, and the distribution of green infrastructure due to the legacies of colonialism and apartheid, these links are what Venter *et al.*, (2021) calls “green apartheid” which persists in South African cities and cities across the world. There has been a growing trend in environmental humanities to document the narratives, experiences and of marginalized communities, to provide policies and plans aimed at developing low-income areas the representation needed to accommodate all people when planning Mega-projects. To bring this conversation to a more local level, and to provide a more specific understanding of environmentalism in the housing space in South Africa and Johannesburg in particular; the following chapter introduces Cosmo City as a mixed-income housing development and as a space of environmental contestation where alternative greening practices are produced.

Chapter 3: Public Housing in South Africa – Locating Cosmo

City

Lemon *et al.*, (2021) provides a series of accounts from multidisciplinary scholars to illustrate the different trajectories of life in African urban spaces. While the south is not limited to Africa, this research will draw on studies that primarily provide accounts of the black African experience, particularly in this chapter. Lemon *et al.*, (2021) track the urban spatial changes in South Africa since the publication of the book *Homes Apart: South Africa's Segregated Cities* (1991) edited by Andrew Lemon. The book traced the change in South African cities shortly after apartheid was abolished. The current series responds to the projected changes the scholars anticipated post 1990 and reflects the ongoing spatial segregation that still characterises post-apartheid South African cities over 30 years after the first series was published.

The book is important in this section because it highlights the long-lasting effects of apartheid in South Africa, especially in the context of public spaces and public housing and the provision of services for the black South African population. Similar to this essay, and this chapter in particular, the book provides not only dystopian accounts of racial residential segregation and life in the post-apartheid city, but it also reveals the often undocumented socioeconomic, community building and conservation practices of people living in African urban spaces that may not be categorized under formal governance practices.

This section starts by providing a conceptual understanding of public housing in cities of Africa, and a critique of public housing in South African cities. The section then gives an overview of the effects of urbanisation on the socio ecological systems in the cities, by discussing the accolades of public housing which are the relatively new mixed-use and mixed-income housing developments. Finally, this section addresses the effects of apartheid greening

in South African urban spaces and proposed interventions on marginalised urban residents in South African cities and their uses and access to public green spaces.

Public Housing in South Africa

South Africa has long followed Western planning trends and has also adopted mixed-income housing policies as part of redressing spatial fragmentation in its cities (Landman, 2012; Watson, 2013). In South Africa, these developments were a product of Breaking New Ground (BNG) policy, a national agenda which was formulated in 2004 to address the housing backlog of 1994 caused by the RDP and GEAR Programmes, further exacerbated by the inefficiency of the RDP system (Sutherland *et al.*, 2015). Although BNG was not fully successful in implementing its objectives of promoting integration, it did provide an entry for South Africa to bring inclusive housing into the forefront of state and private housing projects (Sutherland *et al.*, 2015). Cosmo City, a mega housing project as well as a resettlement site, presents the political economic social and environmental base for examination in this project.

Table 1~~Table 1~~ below is dedicated to the chronology of the South Africa housing legislation discussed in this chapter.

Table 1: Housing Legislation in South Africa

Legislation	Content
Housing White Paper 1994	The Housing White Paper was implemented in 1994 after the elections, promising tenure, and infrastructure to all South Africans. The policy stated that every South African would have access to a secure, private, and permanent structure (a house) with adequate infrastructure such as water, waste disposal and electricity. The goal of the policy was to deliver a million houses by the year 2000, by increasing the allocated budget by 5% each year. Subsidies were given to private developers to develop serviced housing for low-income household who were also required to pay a subsidy depending on the overall income of that particular household (Tissington, 2010; Adegun, 2018).
Reconstruction and Development Programme (RDP) 1994	The RDP was put forward in 1994, at the dawn of democracy in South Africa. This policy was targeted at resource redistribution to close the gaps of inequality caused by the apartheid regime. In this policy, housing was presented as a basic need (Adegun, 2018).
Bill of Rights 1996	Within the Constitution of The Republic of South Africa, the Bill of Rights was integrated to shine a light on the democratic rights of all the people in South Africa. These include access to water, housing, food, healthcare, and social security among others (Adegun, 2018). The state in this case has the responsibility to facilitate the materialisation of these rights. Therefore, the state must provide housing for all South African Citizens.

<p>Growth, Employment and Redistribution (GEAR) Programme 1997/8</p>	<p>A microeconomic strategy which arose from a huge decrease in government expenditure due to a dramatic decrease of the South African Rand post-apartheid. The GEAR Programme was implemented and a late prerequisite to the RDP as both policies had compatible mandates. However, GEAR, unlike the RDP, did not promise to redistribute wealth across social as it was more economically inclined (Streak, 2004).</p>
<p>Breaking New Ground (BNG) 2004</p>	<p>This policy was implemented in 2004, after an almost 10-year processes of deliberation and revision post the failures of the National Housing Policy and the RDP. Breaking new ground called for densification and integration (Haferburg, 2013).</p>
<p>National Housing Act 2007</p>	<p>The national housing Act was implemented in 2007 and it spoke two the three tiers of government, i.e., national, provincial, and local. Each tier had specific responsibilities regarding the provision of sustainable housing in South Africa. This three-tier management/control of housing was meant to shift the control of housing from the private sector to the local-development state (Tissington, 2010)</p>
<p>National Policy on Inclusionary Housing (NPIH) 2007</p>	<p>This policy was drafted in 2007 to include more affordable housing in private developments and to redress the peripheralization of RDP housing in South Africa. Through this approach, developers would be incentivised by receiving a portion of funding from the government and through value capture. These incentives included (tax credits, land, fast-tracking of approvals, density bonuses, bulk, and link infrastructure) (Klug <i>et al.</i>, 2014). The NPIH never became an official piece of legislation due to a lack of support from the South African Property Owners Association (SAPOA) due to its potential impact to property prices. However, some provincial and local municipalities began to adopt this policy whilst others awaited a national policy (Klug <i>et al.</i>, 2011).</p>

Public housing in South Africa has been a contested topic for decades, but it has been put under scrutiny since the end of apartheid as scholars and policy makers are constantly searching for new ways of improving the conditions of public housing, and to make sure that planning objectives meet the needs of ordinary people (Charlton, 2018; Turok and Todes, 2018; Turok *et al.*, 2021) and undo the harm of apartheid spatial planning. In the context of a housing backlog post-1994, due to a growing population and mass migration to urban areas, South Africa experienced a huge rise in informal dwellings where people had the freedom of movement from rural areas to the inner cities but had no means of tenure (Haferburg, 2013; Watson, 2014). Rapid urbanisation presented the need for housing services and opportunities for income generation among poor black people (Watson, 2014; Charlton, 2018; Lemon *et al.*, 2021). In South Africa, the goal for public housing has been to provide equitable and adequate housing for the black majority which is still the most affected by the legacy of apartheid (Visser, 2004; Charlton, 2018; Turok and Todes, 2018). The government made it its mandate to eradicate informality and lack of access to housing in South Africa by providing formal public housing for the poor, through the RDP programme where recipients had private ownership of their houses (Visser, 2004; Adegun, 2018; Charlton, 2018; Turok and Todes, 2018).

The supply and profit driven approaches to housing have not necessarily played a significant role in addressing spatial segregation, these projects tend to focus more on profit than the needs of the diverse groups of people occupying the development, hence spatial segregation often plays out in these developments (Sutherland, 2015). According to Visser (2004), the government of South Africa did not have the capacity to implement the RDP due to a redirection of state funding for public services and a primarily neoliberal system of governance (Visser, 2004; Klug *et al.*, 2013; Sutherland, 2015).

This resulted in huge backlogs and discontent in the delivery of RDP related goals and services (Klug *et al.*, 2013). Hence RDP was superseded by the introduction of Growth, Employment and Redistribution (GEAR) which was a macroeconomic strategy that encouraged economic development led by the private sector (Masuku, 2015; Charlton & Meth, 2017; Adegun, 2018). This approach would promote job creation for the poor, and that was expected to meet the objectives of the former RDP policy. GEAR was criticized for not meeting its own objectives to promote growth, employment, and redistribution (Visser, 2004; 10). As a result of this promise of adequate housing, informal housing is seen as a provisional means of accommodation by many South African citizens just like urbanites in other countries of the global south (Watson, 2014).

RDP housing is a mode of housing that consists of orderly structured neighbourhoods developed in large numbers, usually on the urban fringes for the poor black majority of South Africa (Charlton, 2018). The main characteristics of the RDP are the different colours they often come in which inspired local residents to refer to them as “Smarties or Smartie Towns” after the famous assorted colour Cadbury candy (Hames, 2006).

Another main characteristic is the waiting process, recipients wait many years to receive their homes while living in precarious conditions (Visser, 2004; Ruiters, 2009; Oldfield and Greyling; Charlton, 2018). The two main critiques of this programme are the location of the houses and the homogenization of the recipients of these houses. RDP houses in South Africa are located on the peripheries of cities and towns and are far from economic and social nodes (Onatu, 2010; Lukhele, 2014; Charlton, 2018). The infrastructure and facilities provided for these developments take years to materialise, for example parks, community halls, schools, police stations and public clinics (Visser, 2004; Charlton, 2018). Planners of RDP houses implement a one size fits all approach to developing these programmes, the residents are deemed homogenous, and their individual needs are typically not met. These plans have been

pronounced as ‘utopian’ in the sense that they promote the rational and standardized ideas of planners and neglect the needs of the residents on the ground (Watson, 2009; Haferburg, 2013; Charlton, 2018).

Mixed-income Housing in South Africa

This research centres primarily on mixed-income housing projects and how they can be used to facilitate a more cohesive society through the equitable distribution of infrastructure across racial and social divides. Accordingly, this section aims to offer an understanding of mixed-income housing from a South African perspective to understand the importance of the spatial layout, the inadequacies and incompetence, and how they can improve to better serve the needs of their residents. Of course, mixed-income developments are not unique to South Africa, they have been implemented and adapted in other continents as well, with Sao Paulo and Bogota being some of the pioneers in the conception of mixed-income housing (Sontoro, 2019). Often, mixed-income housing is seen as a way to facilitate the realisation of people’s right to the city through economic integration and providing access to the city’s social and political spaces and providing not only income mixing but income integration as well (Brophy and Smith, 1997; Duke, 2009; Haferburg, 2013).

In South Africa, Mixed-income housing developments have been predominant in Johannesburg as it is the largest city in South Africa and also the most populated with an urban population of almost 6 million people. The following section discusses the manifestation of Mixed-income housing developments in Johannesburg and their situation within the conversation of sustainable human settlements and the need to adequately include elements of environmentalism to facilitate social integration and social integration (Landman *et al.*, 2009; Onatu, 2010; Lukhele, 2014; Onatu & Baloyi, 2020).

The housing system in South Africa has been criticized for neglecting the housing needs of poor citizens, but it has also been praised for having significant success in addressing the housing backlog and securing tenure for many South Africans post-independence. Mixed-income housing policies have been put in place to not only provide housing for the poor but to make housing affordable and develop on well located land that is connected to major social and economic nodes (Haferburg, 2013).

In this context, there are various ways in which the category of mixed-income housing can be interpreted. The common ones being the combination of market-rate and public assisted units for lower-middle class to low-income residents (Lukhele, 2014). In some cases, mixed-income housing includes a combination of fully subsidized housing, rent, or rent-to-buy, as well as housing for the private market (Lukhele, 2014). The income groups are accommodated as follows: people earning less than R3500 per month are eligible for fully subsidized government housing. Households earning above R3500 to R10 000 per month, commonly referred to as the 'gap market' are eligible for state subsidized housing as well as rent/rent to buy units (Klug *et al.*, 2014; Lukhele, 2014; Masuku, 2015). The free market/affordable housing accommodates households earning above R10 000 per month (Klug *et al.*, 2014; Lukhele, 2014; Masuku, 2015). In this agreement, the developer owns the land, and it is also responsible for the provision of bulk infrastructure and the marketing of the development while the municipality is responsible for providing the basic services such as electricity, water, and sanitation services (Lukhele, 2014; (Masuku, 2015; Adegun, 2018). The role of the municipality within this agreement is to provide financing for some aspects of the development.

In some mixed-income housing developments, it may be easy to distinguish between households from different income groups and in some it might not be as easy. This is all dependent on the physical layout and design of houses in these developments, for example Cornubia in Durban and Thornhill in Polokwane are inclusive housing developments that have

the same design for housing accommodating different income groups across the developments (Sutherland, 2015).

There are various principles used to assess the effectiveness of inclusive developments in promoting social cohesion, which is the main objective of these housing projects. These are integration, accessibility, efficiency, image and aesthetics, and surveillance (Landman *et al.*, 2009; Lukhele, 2014). These criteria of physical characteristics have been identified as the key components which have the capacity to assess the effectiveness of mixed-income housing and to positively influence social cohesion (Landman *et al.*, 2009; Lukhele, 2014). Scholars argue that mixed-income housing could be used as a tool to cultivate social cohesion and environmental sustainability (Haferburg, 2013; Lukhele, 2014; Adegun, 2018).

Other Mixed-income developments

There are other mixed-income and inclusive developments that have surfaced in Johannesburg since then, for example Steyn City, Jerusalem in Fairlands, Fleurhof and Pennyville and Lufhereng which is a western expansion of Soweto, also aimed at addressing the housing backlog in South Africa (Klug *et al.*, 2014; Charlton, 2017). What is unique about Lufhereng is the fact that it has both inclusive and mixed-use components and is thus the biggest integrated development in Johannesburg (Charlton, 2017).

Although other provinces within South Africa have some key examples of inclusive housing projects, Cosmo City is the primary example of such developments in the Gauteng province (Lukhele, 2014; Landman & Napier, 2010; Scheba & Turok, 2021). In the Western Cape, the Westlake Village in Constantia Valley is seen as the most successful development in terms of racial and socio-spatial integration in the province. Amalinda residential project in the Buffalo City Municipality, East London is the key example of an integrated urban development in Eastern Cape province (Lukhele, 2014; Landman & Napier, 2010; Scheba & Turok, 2021). In

KwaZulu Natal, Cornubia on the Northern Corridor of Durban is an example of an integrated housing development. Cornubia is located between two activity corridors and economic nodes which is an indicator of social integration of people from different backgrounds (Lukhele, 2014; Sutherland, *et al.*, 2015).

Lastly, in Limpopo province, the Thornhill Estate in Polokwane comprises townhouses that accommodate people from different income groups (Landman, 2012; Lukhele, 2014). The most prominent features of the mixed-income housing developments mentioned above are their focus on amenities and proximity to social and economic nodes (Haferburg 2013; Klug *et al.*, 2013; Lukhele, 2014;). These are important features of mixed-income housing; however, they can also be used to justify the intangible features such as social cohesion which is hard to measure but is very much reliant on the existence of all the principles of mixed-income housing (Landman *et al.*, 2009; Onatu, 2010; Lukhele, 2014; Onatu & Baloyi, 2020).

Cosmo City and Cosmopolitan Contestations

This section introduces Cosmo City as the empirical context in which this project is based. The purpose here is to locate the role of Cosmo City, as a post-apartheid mixed-income housing development in Johannesburg, within the broader conversation of inclusive housing policies in South Africa. Within this conversation, Cosmo City also sits as a space of contestation of approaches to producing and living with green spaces. In a space of intended inclusivity, both aspirations of socioeconomic and environmentally sustainable lifestyles are at play. The development accommodates people from different backgrounds, and therefore different ways of living but, as the following chapters will show, these are not always welcomed or treated fairly by the many actors involved.

Generally, there are opposing views among the developers and residents as to who gets access to what spaces and why; this issue is not unique to South Africa, but it is a social and political

issue everywhere, however it has particular significance in post-apartheid South Africa as indicated above. The public is still considered informal, unhygienic, and uneducated about the “proper” uses and maintenance of public spaces especially green spaces (Njoh; 2009 & Bronwell, 2014). In Cosmo City, these are aggravated, on the one hand, by the planners, developers, and other stakeholders in the way that the development materialized and, on the other, the residents in how they make use of the spaces provided for home-making and other ways of establishing belonging and claiming their identities (Oldfield & Greyling, 2015; Williams, 2016; Charlton & Meth, 2017; Lemanski, 2020).

The developers of Cosmo City integrated environmental sustainability as one of its main objectives to introduce more green spaces in urban areas, especially areas with a predominantly Black population. Cosmo City is considered an environmentally fragile area because it accommodates a wetland which Cosmo City sits on (Adegun, 2019). There were other green spaces in the area, primarily located in the affluent sections of the development.

BNG & Cosmo City

The constitution carries sections that promote the right to inclusionary housing, with no specific location mentioned. This can be interpreted as housing being in any place, or housing being in spaces “available” (provided by the state) (Dalglish & Bowen, 1997; Sutherland *et al.*, 2015). The implementation of elements of housing into the constitution paved the way for the evolution of housing policies in South Africa as mentioned above.

The launch of Cosmo City coincided with minister Lindiwe Sisulu’s housing policy, BNG (Gopal, 2017). The policy aimed at formalizing informal settlements and fixing the inadequacies of the previous housing policy the Housing White Paper (HPW) of 1994 (Huchzermeyer, 2001; Miraftab, 2003; Haferburg, 2013; Gopal, 2017). The HWP was the first official piece of legislation which afforded previously disadvantaged citizens the right to

dignified housing (Huchzermeyer, 2001; Miraftab, 2003; Haferburg, 2013; Gopal, 2017). The major shortfalls of the HWP were that it failed to implement sustainable and good quality housing with the necessary basic amenities and proximity to transportation routes and social and economic hubs, therefore failing to promote social inclusion (Huchzermeyer, 2001; Miraftab, 2003; Haferburg, 2013; Gopal, 2017). The fast rate at which the HWP was delivering housing post 1994 lead to the shortfalls in implementation which were related to the quality of the houses and the spatial fragmentation it exacerbated (Huchzermeyer, 2001; Miraftab, 2003; Haferburg, 2013; Gopal, 2017).

The revision of inclusive housing policies did not stop after BNG. In 2007, an Inclusionary Housing Policy (IHP) was drafted to facilitate integration, to foster partnerships and to contribute to the supply of affordable housing. However, this policy was never formalised due to the resistance from private and property sectors to incorporate low-income housing (Klug *et al.*, 2014). This policy was determined to undo the misconception that the poor and the middle-class residents cannot live together (Lukhele, 2014; Gopal, 2017). Below is the definition of Inclusionary Housing as stated in the South African Inclusionary Housing Framework:

Inclusionary housing in South Africa means the harnessing of private initiative in its pursuit of housing delivery to middle/higher income households to also provide (include) affordable housing opportunities to achieve a better socio-economic balance in residential developments and also contribute to the supply of affordable housing.

The absence of a national policy was superseded by provincial and local initiatives to drive inclusive developments with the competition for land being driven between private and public stakeholders (Klug *et al.*, 2013). The product of experimenting with this housing policy was

Cosmo City, the N2 Gateway along the N2 highway in the Western Cape, Alexandra, and Olievenhoutbosch in Gauteng (Lukhele, 2014; Lekalakala, 2019). More housing policies were revised and incorporated into local and national legislation. However, for the purpose of this research, the conversation will be limited to legislation that is related to mixed-income housing and Cosmo City.

Mixed-income Housing in Johannesburg

As a result of the inadequacies of previous housing policies in South Africa (RDP of 1994; White Paper of 1994; DFA of 1995; Housing Act of 1997), BNG policy was formulated in 2004 in attempts to facilitate sustainable human settlements and poverty alleviation through employment and property ownership in urban spaces. BNG was the first policy to incorporate elements of environmentalism and sustainability in national legislation and recognising the need for people-nature relationships especially in poor communities (Oldfield & Greyling, 2015; Adegun, 2018). BNG remains the operational housing policy for South Africa, and since its inception, mixed-income housing developments have been on the rise in South African cities since 2004, when Cosmo City, the first mixed-income development was constructed (Haferburg, 2013; Lukhele, 2014; Adegun, 2016; Kriegler & Shaw, 2016; Adegun, 2018) As the first mixed-income development, Cosmo City had specific objectives addressing racial integration, income diversity and ecology (green infrastructure) (Adegun, 2016; Adegun, 2018).

As the first mixed-income development in Johannesburg, Cosmo City is the most relevant for this study because of its location, layout, and overall objectives. The development has managed to merge partnerships between private and public stakeholders and engage the community in a variety of workshops on environmental education as well as economic development workshops (see [Figure 3](#) ~~Figure 3~~). Consequently, Cosmo City has been greatly criticised for sustaining apartheid spatial planning even in a development with a predominantly Black African population. There is limited scholarship on greening mixed-income housing in South Africa, with Cosmo City being the commonly used example as a greenfield site and first product of policies with environmental sustainability objectives. Literature on greening South African cities lack development plans for the provision of green spaces and the funding challenges for financing within the housing subsidy system (Adegun, 2018).

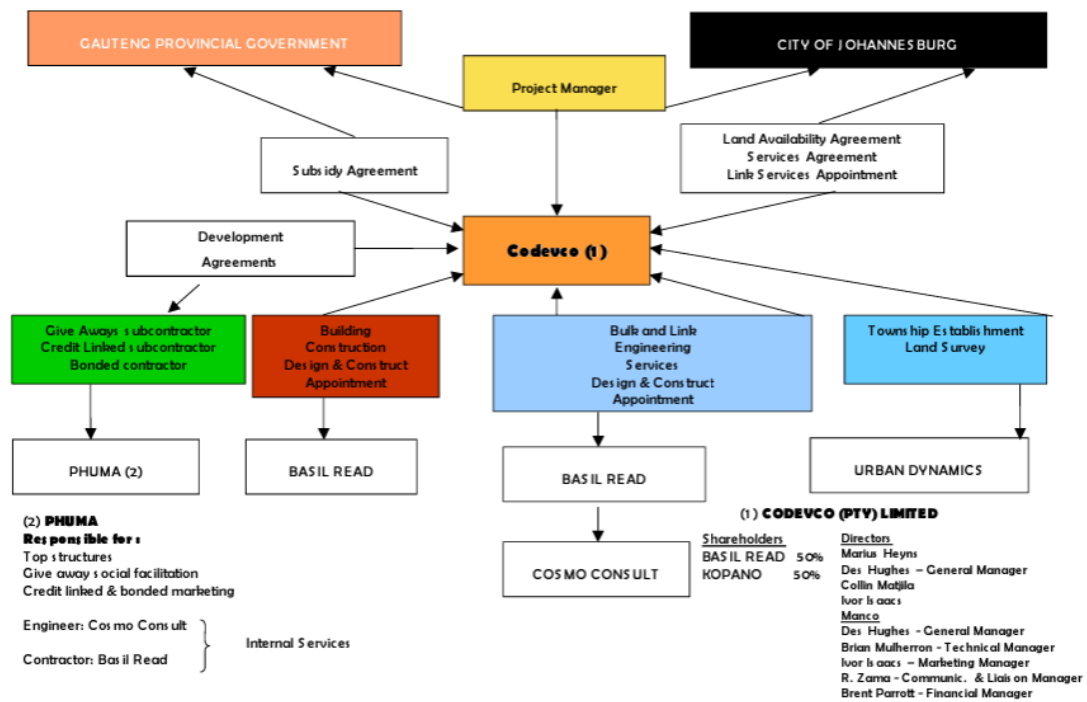


Figure 3: Public-Private Partnership of Cosmo City (Ruiter, 2009, p. 56)

Although the overall Cosmo City Development is referred to as a township by many scholars (Onatu, 2012; Haferburg, 2013; Adegun, 2016), there seems to be a distinction made by the residents regarding which spaces are townships and which ones are not. While Cosmo City was proposed as North-western Township development NOWETO, like SOWETO, which is a township on the South-western boundary of Johannesburg, the plan was dismissed in the 1980s after it received a lot of resistance from the middle-class residents of the neighbouring northern suburbs (Haferburg, 2013).

Comparing mixed income housing with inclusionary housing

In South Africa, inclusionary housing policies were a product of BNG, and they were developed to redress the fragmented apartheid city through offering private developers' incentives to include affordable housing in their developments. This was enforced through the National Policy on Inclusionary Housing mentioned above. Inclusionary housing does not include members of low-income groups, developments accommodate lower-middle-class,

middle-class and upper-class households (Klug *et al.*, 2014). These inclusionary schemes consist of a 10-20% provision for affordable housing units. Provisions for affordable housing to be constructed offsite can be made in the inclusionary housing sphere (Klug *et al.*, 2014).

In contrast, Mixed-income housing policies include a combination of fully subsidized low-income housing, partially subsidized housing for those in the gap market and private housing for households in the private sector (Klug *et al.*, 2014). Mixed income housing developments include the low-income households; however, higher income groups are not included in these developments. All units in mixed-income housing are located within the same developments where residents share the same level of access to amenities and infrastructures available in and around the developments (Klug *et al.*, 2014).

Scholars argue that mixed-income housing policies are still more likely to succeed than inclusionary housing policies because they have more capacity for legislative and institutional support and follow the systems of inclusion much better even though they can still be exclusionary through racial segregation (Klug, *et al.*, 2014; Lekalakala, 2019). Aceska *et al.*, (2019) also argue that urban public spaces may contribute to further development of the relations among people, but they may also produce segregation. As mixed-income housing developments progress, they have the potential to contribute towards restructuring South African cities (Haferburg, 2013), as it will be demonstrated in the case of Cosmo City in the following chapter.

Conclusion

This chapter has highlighted the complexities of lived spaces in the South African context and the major challenges faced by policy makers in producing mixed-income housing policies that are integrative, dense, well located and comply with the principles of assessing the effectiveness of inclusionary housing. Many inclusive and mixed-income housing

developments were identified across the provinces in South Africa, showing a growing trend of promoting integration in mega housing developments which indicates, to some extent, a willingness to form public-private partnerships and to facilitate sustainable socio ecological relationships within communities. This chapter has also identified some shortcomings for the provision of sustainable housing projects, which present a need for more ecologically inclusive housing interventions in South African cities.

Chapter 4: Living with difference? Contested Aspirations of Greening in Cosmo City

The aim of this project is to assess the ways in which the residents of Cosmo City connect with the environment and if and how those connections affect their relationships towards one another. Although the development was designed and built to facilitate social inclusion, it has managed to reproduce fragmentation through the uneven distribution of greenspaces. South Africa has a history of racial segregation, and access to socioeconomic opportunities and green spaces has been distributed unevenly according to race, with black people being the most disadvantaged by these processes of segregation, receiving minimum to no access to both economic opportunities and ecological spaces. Cosmo City has distributed its green spaces unevenly, with the affluent residents having more access than low-income residents, this excludes the presence of the protected wetland which engulfs the development. It must be noted again that the physical layout of Cosmo City is distributed according to income and housing typologies, thus the layout of green spaces is also distributed according to income and housing typologies.

This chapter will outline the findings of the research, and analyze the information gathered from interviews with the residents and the environmental officer. The analysis of data collected included a themed categorization of individual stories of the residents. These stories describe the greening practices which the residents engage in. The purpose of the stories is to bring forth the greening practices of the sampled low-income residents. As mentioned before, low-income spaces in Cosmo City have a deficit of green spaces due to colonial and apartheid assumptions and stereotypes. The themes that will be discussed will highlight the impacts of the legacy green apartheid on social cohesion and social integration in Cosmo City. However, before delving into the actual findings, it is important to include the proposed amenities of Cosmo

City to compare them against the amenities that exist or have remained since the development was completed in 2012 (Adegun, 2016).

Along with the mixture of housing, Cosmo City provides all facilities and amenities expected to be found in a fully developed neighbourhood. These include:

- 18 sites for educational facilities (11 primary schools, 4 secondary schools, and 3 other);
- 40 sites for institutional organisations, such as places of worship.
- 43 parks and recreational sites around Cosmo City;
- 32 sites zoned for commercial and retail spaces.
- A 42ha industrial park that has been developed on the major route.;
- A 225ha protected wetland space that cuts through the development

Demographic profile of residents

This section describes the demographics of the residents interviewed in this project. The importance of demographics is to highlight the experiences and perceptions of both young and older residents of Cosmo City and their relation to the environment. As mentioned before, green spaces have many benefits, some economic, health related, and others related to leisure. Different demographic groups relate differently to green spaces depending on their needs and experiences (Muller, 2005). In the South African case, although not discussed at length in this thesis, location and age plays a huge role in experiences with green spaces in the context of poor South African residents. This is because many older residents come from rural areas where subsistence farming was and still is necessary for survival, therefore the skills are passed down generationally (Muller, 2005). Recently, there has been a growing interest in growing food in urban areas and thus younger generations who are most likely to grow up in urban areas

are being exposed to greening practices in the urban environment (Muller, 2005; Battersby, 2013).

Figure 4 below shows how long they have lived in Cosmo City. It also shows the type of housing they live in.



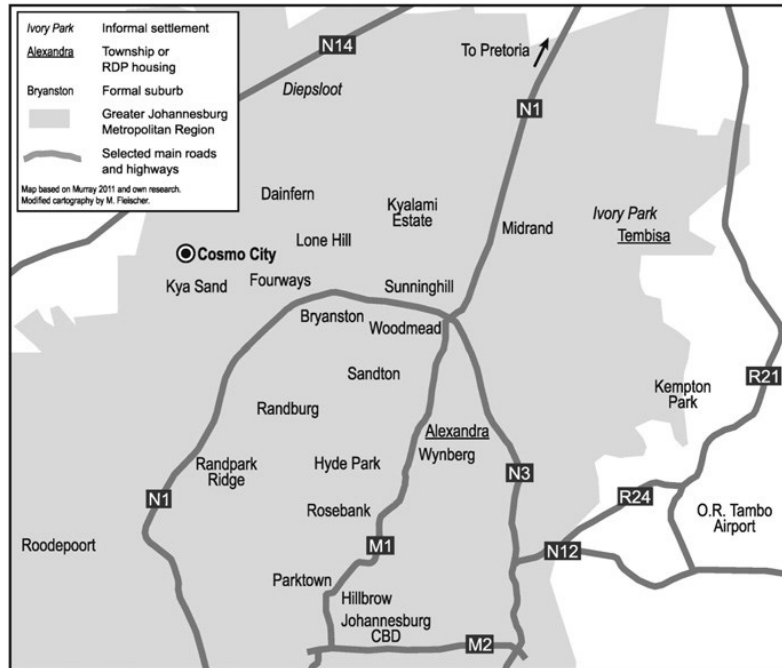
Figure 4: Years Living in Cosmo City

There was an overall of number 10 residents that were interviewed for this study, four male and six female respondents. Four of the residents live in the RDP section, two live in the credit-linked sections and four live in the bonded sections. The social and environmental dynamics of living in the development were revealed by the living trajectories of the residents. These are detailed below.

The layout of Cosmo City

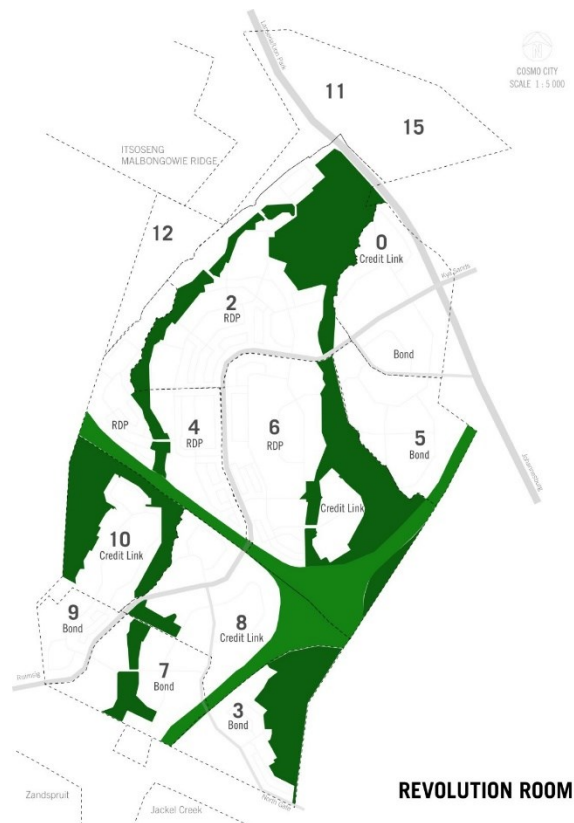
The layout of Cosmo City is quite easy to understand. The development stretches from Malibongwe Drive, formerly known as Hans Strijdom Drive, north of the development. Malibongwe Drive runs through the northwestern side of Johannesburg and connects suburbs such as Randburg to Northgate and continues to be Phelindaba Drive towards Lanseria. The

bonded sections are located near the main roads on the outer parts of the development surrounded by affluent neighbourhoods such as Fourways, Northriding, Sandpark and Randburg. The RDP sections are encapsulated by the bonded and credit-linked sections in the middle of the development see [Map 2](#).



Map 1: Location of Cosmo City (Haferburg, 2013, p. 264).

[Map 2](#) below shows the different extensions in Cosmo City and the housing typologies that exist within them. The RDP section encompasses extensions 2, 4, and 6 (Adegun, 2018), the credit linked, or partially subsidized section covers extensions 0, 6, 8, 10, and the bonded sections are extensions 0, 3, 4, 5, 7 and 9 as illustrated in [Map 2](#).



Map 2: Greenbelt in Cosmo City (Sadie, 2021).

Insufficient and inadequate green spaces

There were several green spaces that were planned for the development of Cosmo City. A total of 57.4 hectares of land was allocated for public open spaces, that included 43 parks and a multipurpose center. Only 10 of these spaces were developed as parks and out of the ten spaces, only 2 are fully functioning in the RDP sections [Map 3](#). The other park spaces are not developed or have inadequate amenities. According to Basil Read Environmental Officer, the parks were developed by Johannesburg City Parks and Zoo (JCPZ), who commissioned South Africa’s first black landscape architect, Mr Thabo Munyai in 2006, who developed the first four parks. According to Adegun (2018) Mr Munyai developed the pathways using a method that would predict the movements of pedestrians, however, this failed because actual pedestrians used methods that went against this planning (Adegun, 2018). [Error! Reference source not found.](#) [Figure 4](#) shows a typical well-developed park and its amenities, it also shows

the contradiction of the planned pathway and the actual route the residents take to access to use the amenities.

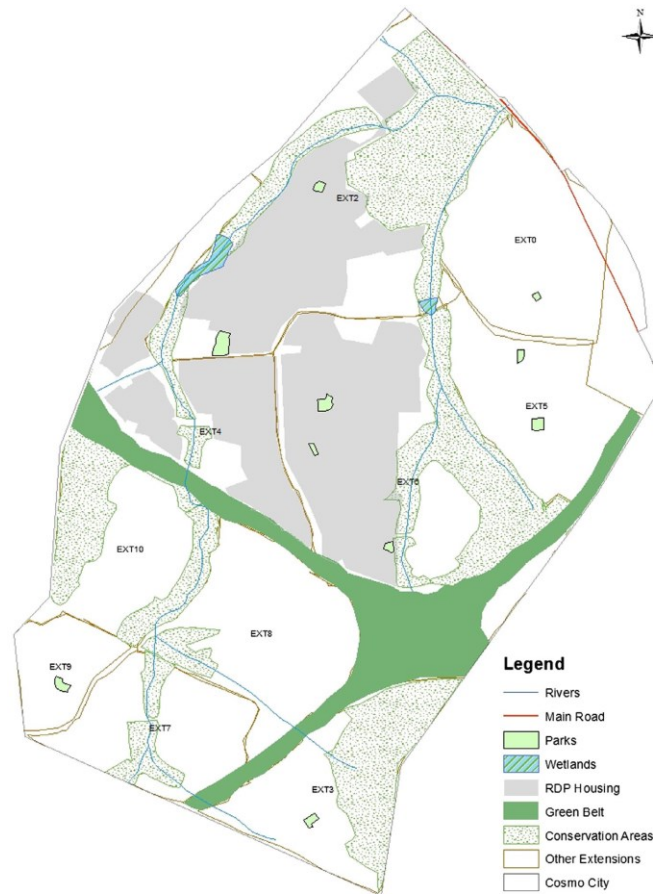
Low-income areas in Cosmo City also have an abundance of unplanned green spaces, as planning for green spaces is skewed in development, other residents are left to find alternative ways of greening their spaces. By assessing the ecological layout of the development one can clearly see the distinction between the formal/official planning of green spaces by the city officials and the alternative methods of the residents. This shows the willingness of the residents to construct and maintain green spaces in their private and public spaces. This phenomenon is often overlooked in literature and legislation (Shackleton and Gwendla, 2014 & 2021).



Figure 5: A fully functioning park in Cosmo City (photo by author)

Cosmo City is an environmentally sensitive area (Van der Merwe, 2006). The environmental legislation of South Africa requires an Environmental Impact Assessment (EIA) to be done before any development to assess the likelihood of environmental impacts imposed by the proposed project. The EIA then requires a Vulnerability Assessment (VA) when a sensitive area has been identified. Before the construction of the development, an EIA had to be conducted to locate all the sensitive areas and species which existed on the land (RSA, 1998a; Adegun, 2016). There was a species of giant bullfrogs which Cosmo City was home to, and

these bullfrogs were a near threatened species (Van der Merwe, 2006). A ‘Specialist Bullfrog Study’ had to be conducted and a 3m palisade fence installed to protect the 250-hectare greenbelt area (Van der Merwe, 2006).



Map 3: Cosmo City extensions, green spaces, and roads (Adegun, 2021)

The shortcomings of Cosmo City

This section addresses the shortcomings of the development according to the feedback given by the residents during the interviews. These include experiences of living in Cosmo City as determined both the objectives of the development and their own expectations and aspirations of life in Cosmo City.

Lack of integration due to inadequate green spaces

The young and new residents interviewed in the study (35 and under) reside in extensions 0, 8, and extension 3. These residents had moved to Cosmo City because of the development's

location, in proximity to major economic hubs. All four residents in this category are Zimbabwean nationals. They expressed that Cosmo City is more convenient than the Johannesburg CBD which is about 40 minutes away from the northern suburbs which they work, and they get direct transportation from Cosmo City to their employment areas. They also said that rent in the development was more affordable than in the neighbouring suburbs.

Two residents expressed that they would not want to live in Cosmo City for more than five years for the reason they do not like the atmosphere in the development because it is very chaotic, and it is not a safe place for young people, especially young women to live. The locations mentioned for potential relocation were in Randburg, an upmarket area adjacent Cosmo City.

The first group of long-term residents that were interviewed were residents younger than forty years of age. These residents had been living in Cosmo City for more than five years. These residents live in extensions 10, 6 and extension 0. The overall perception regarding Cosmo City and green spaces among these residents was that Cosmo City has changed drastically since they moved there. The major changes were seen in the demographic composition of the residents, with a specific reference to the presence of non-South African nationals living in the area. According to (Ngwenya, 2017), there is a large presence of Somali immigrants in Cosmo City who practice informal trading for economic survival. There is also a large presence of Zimbabwean residents as well as taxi marshals and taxi drivers who were employed by the local taxi drivers to cover short routes to avoid being in spaces far away where they might be harassed (Ngwenya, 2017).

When it comes to greening practices, this group of residents are very active in growing their own food and maintaining green spaces in their homes where it is possible to do so. Thandazani, one of these residents mentioned that he started a vegetable garden with his brother in their backyard during lockdown and they have maintained it since then. Thandazani

and Gloria (mentioned below) state that it is much cheaper to grow your own food because supermarket prices are increasing and causing a strain on their finances.

Gloria and her siblings said that gardening is a fun and bonding activity for her and her family, they take turns taking care of the plants and when it is time to harvest, they all help each other prepare the food and share some vegetables with their friends and neighbours.

Gardening for some of the residents interviewed is not something they discovered on their move to Cosmo City, they have been involved in gardening practices from a young age where they would take care of plants and grow their own food with their parents in their hometowns.



Figure 6: Gloria's garden (Photo by author).

The second group are residents over the age of forty years. These residents have been living in Cosmo City since the beginning of the development. They have watched Cosmo City transform and change into what it is today, they are also the residents who have waited for services the longest and experienced the inadequacies and inefficiencies of the development. However, these residents have great sentiments towards the development as it has been their home and for some of them, the home of their children and grandchildren.

Among the participants of this study, the older residents seem to be the most invested in greening practices and have been engaged in some form of gardening and conservation practices since their relocation to Cosmo City. And thus, their trajectories of life in the

development are tied to processes of sustainability. The residents reside in Extension 2 and 4 of Cosmo City, these areas are both RDP sections.

Thandi

The first resident that was interviewed extensively is Thandi. Thandi is a 54-year-old woman living in Cosmo City Extension 2. Extension 2 is on the northern side of the development. Thandi is originally from the Eastern Cape, she started living in Cosmo City in 2011. The plan was to have a place for their children to visit in Johannesburg and so they bought a bungalow in the informal settlement of Zevenfontein and were part of the cohort which had houses built for them in Cosmo City.

Thandi has a lawn outside of her yard, in front of her house. The lawn consists of a patch of grass and two big acacia trees. She started her lawn in 2019 after her sister passed away. She says she wanted something to keep her occupied, to distract her from thinking about her sister's passing. She started planting the grass, she hired someone to install the foundation and then started taking care of it herself as time went by. She says she received the trees from the municipality; they were doing a tree planting workshop and offered two trees to each of the residents. They have grown now, which shows that they have been taken care of. Thandi mentioned that when it comes to her neighbours, they have no regard for the space she has created for herself and her sister's memory. People come from their houses and sit under the shade in front of her house. She says some people leave empty bottles of alcohol and litter on her lawn, children play there, and when she asks people to stop sitting in front of her house, they tell her that it is the municipality who gave her that space and therefore they have a right to be there.



Figure 76: Thandi's lawn (photo by author).

Thandi stresses that she spent a lot of time and money on her lawn, and no-one helped her maintain it and keep it the way it is. They had a birdcage, and it was destroyed by the children who played by her house. Taking care of birds has been a tradition in Thandi's family. Her mother used to supply water and food for birds outside her house and she adopted that mentality and was devastated when her birdcage was destroyed. She has been hesitant to get a new one because she fears it will be destroyed again. Thandi is passionate about taking care of plants, although she does not have the space in her house, she still thinks it is important to plant something and take care of the environment.

Florina

Florina is a 74-year-old woman living in Cosmo City extension 2. She arrived in Cosmo in 2005 from Mafikeng because she found work as a domestic worker and immediately moved into her RDP house. She lives alone and rents out a backroom in her house. She has plants all around her house; she has peach trees, guava trees, papaya trees, roses, and many other flowers.

“I started my garden when I arrived in Cosmo, because my front neighbour's house used to flood, the water would come from their house into mine, and so I started to prevent my house from flooding as well. I used to ask people to help me so that I wouldn't live in a puddle.”



Figure 87: Florina's roses, papaya, and peach trees (photo by author).

Florina started planting spinach and then corn but she had a problem with rodents and decided to stop and take care of other plants and trees that were growing in her yard. Florina makes jam with the peaches and the guavas; she does not sell it but sends it to her family back home. Florina works in Bryanston as a domestic worker, she has worked for the same family since she arrived in Cosmo City.

Florina mentioned a few issues that she faces with regards to her garden spaces.

“People love my garden; the only problem is that they do not stop the kids from playing in it. I even replanted new grass, but it doesn't grow because the kids keep destroying it. They play soccer there. It means that when you try to beautify the space, they will eventually destroy it. They will litter in your garden, even adults

will come and sit there and then throw empty liquor bottles. A garden requires a lot of work because people do not like a clean space, they will make you sweat.”

Lack of support for residents’ livelihoods

Solly

The second resident who takes pride in their gardening practices is Solly. Solly is from Johannesburg, Deinfern, he moved to Cosmo City in 2010. His house was a regular size RDP, and he took up the space that was available as his house was on the corner of the street. Because he did not have any privacy, he put hedges around his yard as a fence. In 2011 he hired someone to assist him and put in more evergreen plants around his yard to support the hedge. He prides himself on the fact that plants do not require a lot of water. He decided to take up the idea of pocket gardening and adopted it in his own yard. Pocket gardening is a type of gardening that uses edible plants often used in small places/yards to attract wildlife. Pocket gardens have multisensory impacts that contribute to the overall wellbeing of people surrounded by them (Bitterman and Simonov, 2017).

Solly used to work at a nursery which closed in Witkoppen and that is where he learned about gardening and building houses because he helped his former employer extend his house. When the nursery closed, his employer gave him plants and seeds, and that is when he started pocket gardening. He said that he wants people to think that he lives inside a bird's nest. This was motivated by the fact that the area is very dusty, he says that when cars pass by all that dust goes into his house. Now all the dust gets caught up in the leaves of the plants.



Figure 98: Solly's house (photo by author).

Solly also grows fruits such as grapes, oranges, lemons, guavas, plums, and avocados in his pocket yard. He used to sell his grapes but found that most of the time they get eaten by all the birds that his “nest” attracts. Another issue that he has is that rodents eat his fruit before he can harvest it. He has been trying to grow oranges for a long time, but he has been finding it more difficult than growing other fruits. Another problem that he is facing is that he is in the process of extending his house, and the bricks that he has bought for the extension are taking up too much space, therefore he cannot plant as many fruit trees as he would like. Solly has tenants renting in his house. While he has people staying there, he is also building a cottage to rent out more space to more guests. In addition to the cottage, he wants to have a double-story house. He is doing all the building by himself simultaneously with all the gardening and tree planting. Solly loves living in his nest, he says that when he leaves his house and goes outside, he feels uncovered, as if something is missing. He does not feel comfortable being away from his nest, he feels like he cannot breathe properly. Even his tenants love his house, they always extend their stay, and if they leave, they always come back eventually. He often has people taking pictures outside his house in the afternoons, especially on Sundays after church, people will take turns taking pictures outside Solly’s house because they love the greenery in the background.

Solly has banana and mulberry trees planted in front of his house, just across the road. He planted the trees in 2010, he wants to get more trees to take up the space at the back of the trees because he simply wants to live in a space with lots of trees and green spaces. He would like other people to take up gardening because he finds it very calming and easy to do. As he explained, you can take a leaf or root of the plants he already has in his house and put it in the soil, and it will grow with proper care. Solly does not feel like many people are interested in the practice of gardening, although they admire his house and its transformation.



Figure 109: Solly's banana and mulberry trees (photo by author).

Lack of support: Financial and Infrastructural

Infrastructural issues such as road damage, overpopulation, high density, especially in the RDP sections, and high crime rates were the most common problems interviewees talked about. The positive changes that were mentioned were related to increasing property rates, where residents could renovate and sell their houses for higher prices than they initially bought them for.

Mike

Mike started living in Cosmo City 2000 before construction began in the development. He did not live there long enough for him to be eligible for an RDP house hence he has been renting a backroom for so long.

“I moved here in 2000 when they were still giving out plots, and I did not get to spend much time in a shack to qualify for a government house. I used to live with a man I worked for, who had a plot in Chartwell, and it was exceedingly difficult to move to a new place because I had already made connections there and I had a lot of people that I knew.”

Mike started his garden in 2020 during lockdown, he learned about gardening in Mashishing (Lydenberg) where he grew up. He also worked for a company that made ceramics and planters in Lanseria where he learned about making his own ceramic pots and steps. The company closed due to Covid-19, and he decided to start his own fresh produce and ceramics business. Since he does not have a house and his own yard, Mike decided to use a portion of the wetland in front of the house he is renting in to start his business. This portion also houses about four more gardens that other residents decided to start for themselves.



Figure 1140: Mikes Garden and ceramics business (photo by author).

“I started this thing as a joke, well it was like a joke to everyone else because most people don’t like earthly things. We come from the earth, all the wealth we have comes from the earth and we must give back to it.”

All of the information provided on the types of plants that are in Mike’s Garden was obtained from him, and he said in the interview, he also mentors potential gardeners. Mike sells fruits and vegetables, he grows spinach (Kovo/kale) which is indigenous to Zimbabwe. He grows muskmelon which grows in the very northern parts of South Africa. He got the seedlings from Venda, Limpopo. Mike has an African bush/horned cucumber tree which is indigenous to Africa. Mike also grows and sells succulents; his main goal is to grow and sell organic products, and therefore only grows plants that do not take up a lot of water or soil.



Figure 124: Mike's succulent business (photo by author).

“I do not use fertilizer here, I only use water, my crops grow on their own. A lot of people want organic crops. Organic means that I do not use fertilizer, I just use the soil and water. When it comes to planting, I use the roots of the spinach to grow more spinach, that is where you will get more seedlings.”

Mike sells his products on an online platform called marketplace, that is where he gets most of his customers and referrals. “I have different clients in Fourways, Dainfern, Steyn City, Cedar

Lakes, I have clients all around Johannesburg. I even have clients in Northwest, Krugersdorp and in Klerksdorp.”

With the proper support from the municipality or independent supporters, Mike would like to start a workshop in Cosmo City where he employs people and teaches them how to grow their own crops and how to take care of plants. “When planting these things, as you can see I have more than two thousand crops, I cannot do it alone, I need help. But I do it, and it is not about avoiding paying workers, but I do not have enough funds.”

“I could hire about 12 or 13 people here if I have the funds. So, my biggest problems are water and cash injection. This is not our land/our space, when the municipality comes and asks questions, I should be ready with the answers and tell them what it is exactly that I'm doing here. This does not cause any harm to the environment, the only thing that I would say that I did was cut the grass and plant my crops, but I did not destroy anything that anyone could complain about.”

Contested Aspirations

Mike mentioned that the community members are incredibly supportive of his gardening and ceramics business. He has not faced any problems with his neighbours in terms of safety and comfort. The only issue he has is the water bill because he does not have his own house to source irrigation water from, or a water pump in his garden.

“As you can see there at the bottom, that part requires a lot of work because there are pipes underground and sometimes there's a blockage. The stuff doesn't come from my house, it comes from other neighbourhoods, and it ends up in my drain. Now I must look for plumbers and people to fix it because the municipality takes time to respond. When the sewerage spills it passes through the whole

*neighbourhood and people pressure me to call people to fix it when it isn't even
my problem.”*

In contrast to what Mike has experienced in Cosmo City, the residents mentioned below have not had pleasant experiences with other residents when it comes to maintaining their greenspaces.

Solly also feels like there is a lot of tension among the residents when it comes to unique styles of building and taking care of their houses and that is why he likes staying in his house and taking care of his plants. Besides having problems with children destroying her grass and having children picking and eating her fruits before they ripen, Florina also mentioned that the sewerage system in the area is still a major problem and cause of tension among the residents. Because she is much older and has worked so hard on her garden and her house, Florina does not see herself leaving Cosmo City even with all the challenges she keeps facing in her community. She says that she stays in her house and minds her own business to stay out of conflicts and avoid any tensions.

Apartness in Cosmo City

According to literature (Haferburg, 2013; Adegun, 2021) and the residents interviewed, the enclosure of the valley has also been a factor to increasing crime rates in the area, as the only way to pass through is by crossing in the middle of the bushy valley. The perceptions of safety related to the valley have strengthened the arguments made by some residents where they associate greenspaces with criminal activities and thus rejecting interventions to green their spaces. The valley was closed to preserve the wetland and its ecosystems and ecosystem services. The 250 hectares of blue and green species also housed a community of bullfrogs that was endangered.

The enclosure led to residents breaking parts of the palisade fence to pass through to the other extensions ([Figure 13](#)~~Figure 12~~). This created many pathways in the valley that damaged a large part of the ecosystems ([Figure 14](#)~~Figure 13~~). Another factor that contributed to the destruction of the wetland was the illegal dumping of solid waste and the sewerage that would seep into the valley polluting the water running through and causing a foul smell, leading the residents to refer to it as “makaka” which directly translates to “shit|place of shit” (see [Figure 14](#)~~Figure 13~~). According to (Adegun, 2021) the developers and municipality could have created a way for the residents to pass through the valley without damaging its ecosystems.



Figure [13](#)~~12~~: Broken palisade fence in Cosmo City's greenbelt (photo by author).



Figure 1413: A woman passing through the valley after church, and pedestrian pathways in the valley.

Plans vs reality

The objective of turning a greenfield site into an environmentally friendly housing development was emphasised through the stages of the completion of Cosmo City. According to the residents and by observing certain parts of the development, it is visible that more attention on green spaces has been paid to the middleclass sections more than the RDP sections. Not disregarding the efforts made to try and incorporate the residents of the RDP section into gardening and conservation practices by NPOs (Non-Profit Organisations) and in some part the developers in the initial stages of the relocation to Cosmo City mentioned below.

There is a disjuncture between the original idea of the development and the lack of support for maintaining greenspaces. As a product of a private-public partnership, Cosmo City had environmental sustainability as one of its main objectives, this included environmental education workshops that were conducted when the residents moved into their houses. And

more workshops that focused on specific environmental issues such as tree planting workshops for shade and carbon sequestration, gardening workshops to mitigate food security and unemployment, waste management, and energy efficiency with the introduction of solar geysers (Onatu, 2010; Adegun, 2016; Mphaka, 2017). These workshops were conducted in various parts of the development, but they were all intended for the benefit of all the residents and surrounding communities.

In an interview with Basil Read officer Stan Mahlalela, he mentioned that the company had annual garden competitions where the residents were encouraged to construct and maintain domestic garden spaces. The competition entailed an annual prize that was not in monetary form, and it was given to a resident who had taken the best care of their garden in terms of quality and quantity. The competition stopped when the city could no longer “control” the population and the need for garden spaces was superseded by the need for backrooms and more accommodation to make extra profit. In addition to the greening workshops, the developer planted 22 000 trees in Cosmo City. A non-governmental initiative, Food and Trees for Africa (FTFA) planted 10 000 trees in Cosmo City (Adegun, 2018). Combined, the trees planted in Cosmo City were both from public and private sources fulfilling their corporate-social responsibilities (Adegun, 2018).

A tree planting workshop was conducted by FTFA that aims to address food security, environmental sustainability and promote social development by teaching low-income residents of Cosmo City how to grow their own food. According to Adegun (2016), the workshop included the distribution of over 20000 fruit and non-fruit trees to the residents, this is where Thandi and some of the residents received their trees from. Residents who did not want any trees or green spaces around them were asked why this was the case and they responded that they either did not have time because they work long hours, some said that they have tried, and their gardens were destroyed by rodents, (confirmed during interviews with

residents). Adegun 2016 does point out that the workshops only accommodated unemployed residents and did not cater for the employed residents who might have also been interested in gardening.

Despite the optimistic efforts that these workshops and initiatives put into introducing more sustainable practices to Cosmo City, many residents feel excluded because these workshops did not cater for all the residents (Adegun, 2016), they are only available to certain residents because of low budget costs and unavailability of resources to distribute to the rest of the people.

Chapter 5: Living with nature in Cosmo City

This chapter brings into conversation the literature review and the findings of the project. As such, it aims to answer in detail the questions presented by the research objectives. The central theme in this thesis is to understand how the development reproduced green apartheid through unevenly distributing the public green spaces in Cosmo City. While South African housing policies are being improved to accommodate disadvantaged groups and communities, they still show patterns of discrimination. This chapter highlights the legacy of green apartheid in Cosmo City as it is lived by the residents. The stories of greening practices mentioned in Chapter 4 will be put into conversation with the literature on greening public spaces and mixed-income housing in South Africa. Lastly, the chapter also highlights the shortcomings of the development in promoting environmental sustainability and social cohesion among the residents through social and infrastructural inadequacies.

Greening aspirations in Cosmo City

The residents of Cosmo City not only live in an ecologically abundant space, but they also live with nature through their greening practices. Based on the interviews conducted, the residents seemed to have varying perspectives and experiences of how they navigate green spaces. For instance, one resident commented “I don’t have time to maintain a garden, I go to the park every once in a while, if I want to be around nature.” Another older resident commented *“Most people do not understand when you tell them about things that concern gardens because as black people, we are not really educated about gardening especially planting crops and knowing what our crops are and where our crops come from. There are a few people who know about those things. Because I had the courage, I tried to make something.”*

As the narratives in the previous chapter showed, some residents have vegetable gardens because they were taught the skills when they were young and have some methods of planting

minimal maintenance fruits and vegetables. Another resident has taken up space on the wetland to start a small garden which has turned into a small business, and some people do not want any vegetation in their households because it takes up a lot of space and requires a lot of time and energy which they would rather invest in other activities.

The residents of the RDP section also blame each other for neglecting their responsibilities to their communal and domestic spaces. As Thandi mentioned in her interview, *“people do not care, they think that taking responsibility for the environment has some hidden benefits that other residents will not receive. They want an incentive for everything even things that are going to benefit them eventually.”*

Manyani *et al.* (2021) discuss the attitudes of low-income residents towards formal and informal PUGS. They state that formal artificial elements of PUGS such as swings, benches and fences are associated with happiness while some natural elements such as trees, bushes and floodplains are associated with feelings of anger and sadness, especially in vandalized PUGS.

Inadequate and insufficient green spaces

The main issue identified by the residents pertaining to green spaces was that there are not enough parks and recreational areas for both children and adults to enjoy in the development. There are only two parks recognized by the residents as fully functioning and they are constantly used by people for socializing and exercising. These are only two out of the forty-three parks and recreational areas that were proposed for the development and still two out of the ten existing parks across the different extensions in Cosmo City (Onatu, 2012). These parks are both located in the middle class/bonded sections, and they are maintained by the municipality.

Landman (2021) stresses the importance of green open spaces for children to play, and the importance of design and hierarchy in planning to accommodate residents/citizens of all ages in urban developments. Some residents complained that there are not enough spaces for children to play and for older residents to relax and enjoy themselves. One resident who has three children mentioned that she enjoys the greenery and green spaces such as parks, however, due to the limited number of serviced parks, these are often crowded by adults and, as a result, the spaces become unfriendly for children to play. The residents find it unfair that the only functioning and well-maintained parks in the development are in the bonded sections. To them, this shows that the other sections in the development are neglected, and the needs of their residents are not catered for.

The legacy of green apartheid in Cosmo City

A connection can be made between the above stereotypes shaping how space is perceived and inhabited in Cosmo City, and colonial/apartheid racialized systems of ruling and the policies put in place to racially segregate the population through a “divide and rule” strategy that successfully facilitated a bifurcated state in South Africa and across Africa (Butcher, 2016). This was achieved by unevenly distributing resources across the different races and reinforcing negative racial and interracial stereotypes that remain entrenched (Burns, 2006). The dispossession of land and the relocation of the black population to township and rural areas on the edge of the city was characterized by systematic underdevelopment in various aspects such as poor education, inadequate housing, low paying or no employment opportunities, minimal service provision and negligence from the state (Todes & Robinson, 2020). The presence of greenspaces in rural and urban landscapes has also been used as a tool of exclusion by many apartheid and post-apartheid planners in South Africa (Shackleton and Gwedla, 2021). Arguably, the forms of urban nature found in suburbs across South Africa are still reminiscent

of colonial spatial patterns and are ignorant to of residents' social and cultural needs (Shackleton and Gwedla, 2021), as in the case of Cosmo City.

As discussed above, mixed-income housing developments were implemented to counter apartheid spatial planning policies. However, such structural attempts to counter apartheid spatial planning and policies tend to contradict everyday ways of thinking about and navigating marginalised spaces due to their top-down nature of imposing services. As a relatively new development, Cosmo City does not have the history of being a former black township or, contrarily, a white suburb. However, it has ended up reproducing the same systems of planning for green infrastructures that were used to spatially divide the population along racial and, more recently, class distinctions even in a mixed-income development. These include the above-mentioned unequal distribution of green infrastructure between the middle class and working-class sections, the enclosure of the valley with a tall barricade fence, and unequal access to resources for sustaining domestic green spaces.

This not only causes visible spatial disparities in the development, but it causes conflict among the residents as well. People associate spaces with the people who live in them, and, in Cosmo City, the RDP section is regarded as a space where people do not care about their environment, a space where people do not make effort to keep their spaces clean and green. And thus, this further deepens the negative stereotypes about the residents of the RDP houses, in Cosmo City and across townships in South Africa. According to Shackleton and Blair, 2013, RDP residents of suburbs in Fort Beaufort and Port Alfred were dissatisfied in the conditions of the PUGS near them. Disappointment was directed at the municipality for having no political will or interest in maintaining green spaces and that resulting in a lack of funds allocated for producing and maintaining green spaces. As Thandi mentioned above, neighbours want to enjoy the benefits of greenspaces, but they do not want to take the liberty to cultivate their own spaces.

And Mike mentioned that people are not educated well enough about producing and taking care of green infrastructure.

Environmental awareness

The developers, municipality, and other non-governmental stakeholders have had environmental workshops and intervention in the community from solar geyser installations to tree planting workshops for residents (Adegun, 2018). A critique of social enterprises is that their approaches tend to be simplistic in a sense they only focus on incentivised ways of promoting participation in the community, in some ways alluding to an infantilization of the residents (Daya, 2014). Adegun 2016 states that people in Cosmo City were not taught about the dangers of environmental pollution, “these issues were presumably not addressed, leading one to assume that the environmental training was at a very shallow level, setting out do’s and don’ts rather than providing a grounded understanding of how natural ecosystems function, what threatens them and how to preserve them.” These kinds of issues are exactly what the environmental humanities scholars mentioned above are trying to prevent from happening when approaching environmentalism in low-income areas. Environmentalism, just like many other initiatives for poor communities, must be inclusive and participatory, the needs of the people must be understood specifically and not generalised.

There is a general appreciation among the residents for green spaces, although the maintenance of the spaces is only practiced by certain residents. For example, Thandi mentioned that since she started her lawn, other residents both children and adults and passers-by have been disrupting her space, claiming that it is municipal land, and they have a right to sit there and enjoy the space. She mentions that not only does this cause conflict among herself and other residents, but it shows that people do enjoy the benefits that green spaces provide.

The interviews revealed a contradiction between the appreciation of green spaces as well as the reluctance to construct and maintain private green spaces in Cosmo City. This is where greening workshops should become useful to the residents, for example Mike mentioned above, who offered and led workshops to employ people to practice gardening. The focus for conservation initiatives must be geared towards egalitarian approaches to deepen the knowledge that the residents already have about cultivating and maintaining their greenspaces by encouraging community involvement and fairly distributing the benefits and burdens of energy efficiency and environmental sustainability.

Failures of Cosmo City

The development has received a lot of praise in accommodating people from various backgrounds, providing tenure for poor and lower-middle class residents, as well as considering the role of environmental sustainability in bringing social cohesion and social integration among its residents. However, the development has had many shortcomings over the years. This section of the chapter is dedicated to highlighting these material and intangible failures in addition to the contradictions mentioned throughout this research. The keynote in this section, which has been outlined throughout the chapter, is that the failures of the developer and municipality have left residents to weave together their own realities and to materialise their own aspirations of the lives they would like to live in Cosmo City.

Watson (2013) states that, most of these Mega-projects in African cities, what they call “urban fantasies” end up in the offices or on the websites of these big developers and stand in stark contrast to the realities on the ground, and residents are left trying to fix or materialize their expectations with whatever means they have access to. And when they are not able to do so, they leave/relocate to spaces that can fulfil most of those expectations. Caldeira (2015) discusses the concept of peripheral urbanisation and the processes that urban residents in the south engage in, to piece together fragmented parts of their everyday to fulfil their needs and

aspirations. In the case of this fieldwork and engagement with Cosmo City, there seems to be a peripheralization residents' relation to green spaces. Residents create their own logics of getting access to green infrastructure and combine them with the available services from the municipality to fulfil their greening aspirations.

The Basil Read developers are a perfect example of this as in their office they have a model of what Cosmo City was supposed to look like, but this neat model contradicts the current state of the development, even though the spatial layout itself has materialised as planned.



Figure 1514: A model of Cosmo City (photo by author).

According to scholars, Cosmo City has struggled to provide a strong economic base to support the livelihoods of its residents, it took over a decade for the development to have a proper petrol station, a functioning taxi rank as well as other industries such as supermarkets and retail outlets (Onatu, 2010; Haferburg, 2013; Adegun, 2016). The economic growth of the development or the aspect which was meant to benefit the residents has been slow. But the growth of the

population has been increasing and so has the demand for these services. It will take Cosmo City decades before it can cater to the needs of most of its residents.

The result of this slow economic growth has been the presence of temporary residents who are not planning to stay in Cosmo City for a long time. The younger residents who were interviewed mentioned that planning to stay in the development for long, this is interesting because these are people who have been there for less than three years and they have already established that the development is not the place for them, it is not a place where they see their future. With the introduction of apartment complexes and cottages and backyard rooms, the temporary residents have been introduced in Cosmo City

There is an influx of informal occupants in Cosmo City, there is also a lack of occupancy in the apartments that have been built up in the development. According to the Basil Read development officer, the occupancy rate of these apartment complexes is extremely low, around 46 percent. The development is not attracting as many occupants as it was anticipated. The increasing number of backroom occupants versus the decreasing number of bachelor flats and lofts could be related to the market prices and the ideal target market of the developers over the existing socioeconomic status of available and potential occupants in the development.

Older residents interviewed declared that they have invested too much time and too many resources in their spaces to relocate to other areas. They are aware of the changes that were introduced in the development, but they are not planning to move, instead they are trying their best to make the most out of the situation. For example, Florina, a 74-year-old working class resident mentioned that she started gardening because the drainage system in the area is not well maintained and the consequences of that are visible in her yard in the form of overflowing sewage from pipe bursts. She therefore gets blamed for not maintaining her space and not consulting the municipality as soon as there is a problem.

Street names in South Africa often represent a form of change and spatial redress and they always make political statement; however, they often are reminders of traumatic, colonial events or reminders of struggles won to achieve the new, free South Africa. Changing street names can erase the heritage of a place and change the meaning of a particular place for people (Swanepoel, 2012). The street names in Cosmo City reveal one of the most evident spatial planning failures of the development see [Figure 16](#) ~~Figure 16~~.



Figure ~~16~~15: Street names in Cosmo City bonded section (photo by author).

Cosmo City as the name suggests was meant to make people feel like citizens of the world, “Cosmopolitans,” one would assume that this how the street names came about, but this was not the case. According to the interviewed Basil Read officer, the street names were chosen because the municipality and the developers did not want to cause tension among the parties involved by naming the streets after prominent leaders and politicians of South Africa, as Cosmo City was a pilot mixed-income development they did not want to have street names that might potentially have to be changed eventually. Place name changes in South Africa have been a generic form of redressing apartheid spatial planning and establishing as shared cultural

identity, as they have been previously used as political statements to declare dominance over the colonised (Swanepoel, 2012).

It is difficult to ignore the fact that the street names in Cosmo City undoubtedly reflect apartheid spatial planning by imposing North versus South colonial planning ideas on the development. There is no literature on the street names of Cosmo City, however, Haferburg (2013) states that the issue of street names in the development needs a paper of its own. This is another one of the major contradictions of the development where attempts to redress colonial spatial planning reinforce old and problematic markers of lived and traumatic spaces.

Life on the edge

The inability to make the development suitable or attractive for young Cosmopolitans has made them reject the space and find alternatives that live up to their ideals of what living in the city should look like, even though Cosmo City, despite what the name suggests, is not a city, it is on the periphery, and what the young residents are experiencing is life on the *edge*.

There are many residents of the RDP sections who make a living through informal trading by having stalls on the sides of the road where most people pass through when commuting to and from work or to the supermarkets and retail outlets. In Cosmo City, it is illegal to trade in a house that is considered non-commercial, considering the poverty and food insecurity rates in South Africa, this could be considered an anti-poor strategy (Adegun, 2016). The use of the land on the sides of the road by the residents indicates the lack of commitment to the land regulations that only permits informal trading to some parts of the development. It also shows the extent to which people do not have a choice when it comes to alternatives to or overcoming unemployment caused by the lack of investment in policies and interventions. There are informal trading stalls across South Africa Drive which is the main road that people use to commute. Another common way of making profit among the low-income residents is to

cultivate domestic gardens and sell crops to neighbour or as one of the residents mentioned, sell their crops on Market place which is an online platform where various traders sell their goods to customers all over the country. There is also the contrast of residents growing their own fruits and vegetables to avoid buying from supermarkets or street vendors.

Food production and informal trading in Cosmo City highlight the presence of food insecurity. Scholars (Battersby, 2011; Skinner & Haysom, 2016; Battersby & Watson, 2018; Skinner C. , 2019) argue that the presence of supermarkets in urban areas undermines the levels of food insecurity that exists in these areas. Supermarkets also act as market inflators for people who want to take part in informal trading but cannot pay the market price. Supermarkets also give the impression that economic access (monetary access) is the only form of access which food insecurity can exist, whereas food production (growing own food) and trade (buying food) (Battersby, 2011).

Perceived safety

A set of push factors that were mentioned by the residents were transport availability or lack thereof to certain places, noise, crime, overpopulation, pollution. The fear of crime is another factor that contributes to residents wanting to leave Cosmo City. However, not all residents interviewed want to leave Cosmo City. One resident who noted that: *“My wife and I decided to move from here because I am not comfortable with the crime. Well, I'm comfortable but I'm not comfortable leaving my wife alone because I love being in the streets. I secured the space for the house around 2010 and I only moved around 2013/2014. There are people currently living in the house, for security, they also double up as builders.”*

Kriegler and Shaw's 2015 study on patterns of social cohesion and their correlation to crime and fear in Cosmo City suggested that perceived crime in the development indicates, to a great extent, some form of social cohesion. This social cohesion is strong among the low-income

residents and among the middle-income residents, but not across the whole development where the residents of diverse backgrounds interact. Because of these strong ties in the different neighbourhoods, the shared stories of criminal incidents circulate, and they generate a sense of victimization among the residents, leading to a heightened sense of caution and fear across the neighbourhoods. Kriegler & Shaw, 2016, state that it is easier to facilitate social cohesion among residents that have similar demographic and social characteristics than in ethnically, economically, and racially diverse communities. [Figure 17](#) provides an example of the interconnected variables that affect social cohesion in the context of perceptions of crime (Kriegler & Shaw, 2016).

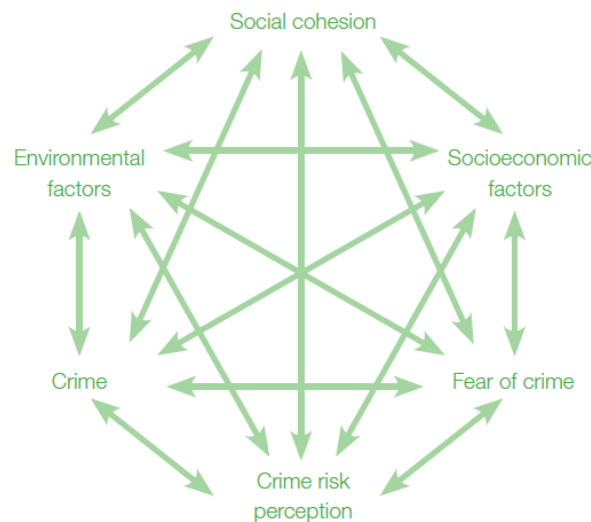


Figure 17-16: Interrelationships affecting social cohesion (Kriegler & Shaw, 2016, p. 62).

The residents reflected on how the high crime levels have impacted their livelihoods in the development. A female respondent mentioned that she feels unsafe walking to the taxi stop alone in the morning for work, she needs to be escorted or walk in groups with her neighbours who are also going to work at that time of the morning. Other respondents also commented on the influx of people in backrooms across Cosmo City and how that has led to increasing crime rates. As it was mentioned by the Basil Read officer, the greenspaces in Cosmo City were destroyed or replaced because the residents had to make way for other practices which would generate more income and for some, accommodate their families. Densification in the area has

been deemed a major issue both by the residents and the municipality. There have been protests by the residents who oppose the demolition of backrooms and other additional structures in their homes because they serve as a source of income (Tshangana, 2014; Kriegler & Shaw, 2016; Adegun, 2018).

The focus on the side of the municipality seems to be on reprimanding the people who have these additional structures and through that, conveying that the construction of backrooms is bad without putting in efforts to investigate the numerous reasons that lead people to these instances of densification, specifically in the development. Kriegler & Shaw 2016 state that there are 70 000 formal dwellings in Cosmo City, there were also over 100 000 recorded informal dwellings.

However, in a study of local municipalities' response to backyarders and backyard dwellings, (Tshangana, 2014, p. 9) states that although in Cosmo City about half or three quarters of the RDP houses have backyard dwellings, they have all been approved by the local municipality and the developers. On top of the approved backyard dwellings, there is a space in Cosmo City, a new phase that has been allocated for backyard dwellings (Tshangana, 2014, p. 10).

The presence of green spaces in the areas has been correlated with increasing crime rates. The residents claim that the wetland serves as space for criminals to hide, according to Escobedo *et al* (2018) states this crime in ecologically rich areas can be considered an ecosystem disservice and therefore not be appealing to residents of those spaces. This has been the motivation for the residents not wanting any trees in front of their houses because they fear that they will accommodate criminals. Activities such as reclaiming waste in Cosmo City have also been associated with increasing crime levels. Mphaka's 2015 study on solid waste disposal in Cosmo City shows the perceptions of the residents of different social classes in the development. The results of the study suggest that waste reclaiming in the area is encouraged by most of the residents and that the activity is practiced mostly in the RDP section because it

is a viable alternative to generate extra income for working class and poor households. However, reclaimers are mostly present in the middle-class areas because the middle-income residents have more buying power and thus generate more waste. Mphaka points out that although reclaimers are not perceived as criminals, their presence in the area might be correlated with criminal activities if they are not monitored.

Mixed-income development not a socially integrated development

As a mixed-income development, it is inherently expected to facilitate social cohesion by its physical characteristics (Lukhele, 2014), this has not been the case. Instead, Cosmo City has managed to drive a wedge between its residents. The physical characteristics of the development including the proximity of the middle-class section near major roads and economic nodes, as well as the visible difference in the costs of the houses which is also emphasized by the street names have contributed to the lack of social cohesion in the area. Cosmo city has failed to give people equal access to transport nodes, and equal economic opportunities through its spatial design. The erection of the barricade fence around the wetland which is between the middle class and the RDP sections has also not made it easy for residents to come together, in fact, it has made interaction between the two sides nearly impossible. Now, both pedestrians and motorists commute via South Africa Drive when they want to go to the different sections.

Processes such as informal trading and the presence of back-yarding in Cosmo City reveal the increasing presence of the working class in the development, an unanticipated and unavoidable process especially in an unequal city such as Johannesburg.

The development was intended to be a way for residents to obtain subsidies and to invest in their own houses for themselves and future generations. This is one positive side of the development, the other side is that the development is much further from economic and

business hubs, therefore the residents must spend a lot of money and effort on transportation. As it has taken the development a long time to keep up with the services that maintain the efficient livelihoods of the residents, it will also take time for them to put forward adequate interventions to accommodate the needs of the residents.

There is a need to consider cities as an integrated socio-ecological system in which humans are part of nature and ecosystems integrated within society (Landman, 2021). There has been growing interest and activity on vegetable gardens in the development especially among RDP residents, the municipality and developers could facilitate the efficient and sustainable continuation of these gardens by providing residents with existing gardens with the training skills and infrastructures needed to make a profit of themselves and their families, as describes in the cases of the residents mentioned above. In terms of the presence and renovation of already existing but abandoned parks, the municipality and developers could put more effort into revitalizing the recreational spaces. As it was mentioned by some residents, parks serve as spaces for residents to socialise and come together to enjoy the communal spaces. This is recognised and should be taken into consideration when planning for communal spaces in the area that are targeted at promoting environmental sustainability and social cohesion. There are clear ecological and spatial divisions in Cosmo City which affect how the residents use the spaces available and how they interact with each other. However, there is also a willingness to bridge gaps of fragmentation and live together.

Chapter 6: Conclusions

This study used three objectives to investigate the relationships that the residents of Cosmo City have with green infrastructure and how that affects their attitudes towards each other. The research departed with highlighting a trajectory of public space in Africa leading up to the greening of mixed-income housing. Cosmo City was presented as a suitable case study area to understand the eco social relations in the development and the social dynamics that exist because of the conditions of greenspaces.

Drawing on relevant existing scholarship, site visits and interviews with the residents of Cosmo City, the findings of the study support the results of previous studies and indicate that there is a reproduction of green apartheid in this post-apartheid housing development. This form of segregation materialized in different ways in Cosmo City, for instance, through the layout of the development, the distribution of green infrastructure, availability of services (sanitation, healthcare, etc.), and through the top-down initiatives introduced to the residents.

Cosmo City was the blueprint for inclusive and mixed-income developments across South Africa. Throughout the thesis, recommendations were made to make Cosmo City and future mixed-income housing developments more inclusive and socially cohesive through the consideration of the residents' specific needs to better maintain and produce spaces that are livable and will be mutually beneficial in the case of green spaces. Recommendations were not only made for policymakers but also for scholars to produce more realistic and contextually specific accounts of low-income residents especially when it comes to their relationships with the environment. Inclusive remedies to overcome social and spatial inequalities in the global south is becoming more popular as ideas and plans rather than material developments (Samara *et al.*, 2012; Haferburg, 2013; Cocks *et al.*, 2019). The planning drive to turn ordinary cities into megacities and world cities has become more of a speculation or a dream than a realistic

plan to create livable cities (Goldman, 2010; Robinson, 2013; Watson, 2014). As seen in the case of Cosmo City, the model is very far from the actual development.

Just as planning has historically been used as a tool to promote exclusion, it can also be used to facilitate social cohesion in many ways such as the limitation of public space like transport routes and public open spaces, as indicated in the case of Cosmo City (Ruiter, 2009; Onatu, 2010;2012, Haferburg, 2013; Watson, 2014; Adegun, 2018; Scheba and Scheba, 2021). This affects pedestrians and public transport users who happen to be most of the residents in the development. Encouraging these interactions through the proper maintenance of parks and recreational areas could reinforce the notion of social cohesion which was initially the main goal of the development.

The narratives of inefficiency in infrastructural service delivery in Cosmo City are meant to contribute to the broader conversation of environmental discourse in low-income areas in the fields of urban studies and environmental humanities. As stated throughout this thesis, there is a lack of research regarding the experiences of poor communities, especially poor black communities in environmental spaces, especially positive non-apocalyptic narratives. Therefore, this thesis, through its objectives, has tried to bring these experiences to the forefront without romanticizing the experiences, as described in Chapter 4 and Chapter 5.

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