Author
Sizwe Edward Kibido

Supervisor
Associate Professor. Doctor of Philosophy in Urbanism Sara Sucena

The Apartheid City in South Africa.

Vrede – The case of a racially segregated urban morphology

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Masters' dissertation
Architecture and Urbanism

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This dissertation was written under the requirement for the completion of the master's degree in Architecture and Urbanism, from the University Fernando Pessoa, under the diligent supervision of Associate Professor. Dr. Sara Sucena.

I. Resumo

A dissertação estudou a cidade do apartheid através da aplicação dos princípios do modelo numa cidade sul africana – Vrede. A identificação destes princípios decorreu da análise de um conjunto de modelos urbanos preexistentes, designadamente da cidade jardim e da cidade moderna, mas também do modelo sectorial de Hoyt, que forneceram a base que o modelo da cidade do apartheid assumiu e modificou. Entre 1948 e 1994, o estado Sul Africano, através do Partido Nacional, operou como agente de construção desse modelo através da promulgação de leis que acentuaram/reforçaram a segregação racial, sobretudo dos nativos africanos, forcando-os a viver na periferia da cidade, em *townships*. Vrede e a minha cidade natal, onde cresci e vivi a desigualdade racial. A minha principal questão de investigação foi, assim, a de procurar saber se Vrede e/era uma cidade do apartheid. A revisão bibliográfica e a analise cartográfica de um conjunto de temas permitiu/me concluir que Vrede foi, e ainda e, uma cidade do apartheid.

II. Abstract

The dissertation studied the apartheid city through the application of the model's principles in a South African city - Vrede. The identification of those principles resulted from the analysis of a set of pre-existing urban models, namely the garden city and the modern city, but also Hoyt's sectoral model, which provided the basis that the apartheid city model assumed and modified. Between 1948 and 1994, the South African state, through the National Party, acted as an agent for the construction of this model through the enactment of laws that accentuated/reinforced racial segregation, especially of native Africans, forcing them to live on the outskirts of the city, in townships. Vrede is my hometown, where I grew up and experienced racial inequality. My main research question was, therefore, to find out if Vrede was an apartheid city. The literature review and the cartographic analysis of a set of themes allowed me to conclude that Vrede was, and still is, an apartheid city.

III. Dedication

I dedicate this work to first and foremost to my mother ‘Nomsombuluko’ who made sure that through my journey of pursuing happiness I was alright at all time and also to my son ‘Asanda’ who has been my motivation to keep on going even when I could not, and also to my sister ‘Thuli’ who assisted me in ways I could not even describe for me to finish my journey and ultimately I would like to dedicate this work to a close friend of mine ‘Sibusiso’ who played a very important part in my research journey in terms of me getting the necessary documentation for this work ‘ may his soul rest in power’ where ever he might be, I am sure he is in a better place.

IV. Expression of Thanks

I would like to thank my Supervisor Profª. Dr Sara Sucena for guiding through the completion my journey of writing this work, her patience towards me through this whole journey is paramount to anything I have ever experience. Her dedication in making sure I make it through even though I had faced some hurtles of life, she threw a life line for me to hang and finish the work, I can never have enough words to thank her and saying thank you Professora seems to be fitting of my sincerest thanks. I would also like to extend my thanks to the town planning department of Phumelela municipality located in Vrede in particular the municipal manager (Sis Pinky) for proving me with the necessary documentation that I needed for Vrede town and Thembalihle township and also, I would like to thank my sister Phindile for connecting me with people that know people that know how to make things happen as I was able to get all the information I need. ultimately, I would like to express my thank to Dr T Bell and Mxolisi, for their advice when I contacted them in my time of need.

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Introduction

1. Introduction

1.1. Object

This dissertation seeks to analyse the apartheid city model, focusing mainly on its tenets as implemented from the beginning of the apartheid in 1948 to its end in 1994. To achieve this, a small town was chosen as case study – Vrede, located in Phumelela municipality, in the free state province, in South Africa.

1.2. Motivation

The main reason that motivated the research on this topic is that the author of the dissertation is from a small town called Vrede, as mentioned above, and has had personal experience of the apartheid city. After living some years abroad and on the verge of concluding his degree in Architecture and Urbanism, he gained a background that allows for a critical analysis of both the apartheid city model and Vrede as an example of the model's application.

The town the author is from will be used as a practical case study to explain the apartheid city, since from a young boy growing up in the township of Vrede, until the age of 10 years old, he found himself wondering why he could not go to town and see where his mother and father were going every day to work. It came to his mind that something was wrong back then; somehow there was the notion of the difference between parts of the town regarding the localization of certain uses/functions, and some movement restrictions attached to it. So many years later, this dissertation gave way to finding out how come he was never able to go to town at a particular point in his life. Thus, this forms part of the motivation for undertaking this topic and question.

Vrede, divided as Vrede town and Thembalihle township, is one of those places that lack an economic base in the township which is also connected with the lived experience of the author, who needed to travel a distance to access basic needs and a livelihood. Recently going through the land use map of Vrede, the gap became evident in terms of the distribution of the various ethnicities and the corresponding signals of inequality. It came to be synonymous with a particular idea that Fatima Friedman (2000) puts well when analysing Katutura township: she says that when one says they are from Katutura that is synonymous with

being poor. The same goes when one says is from Thembalihle township – it has that same connotation to it of triggering a mental image of people who are destitute. Although that might be the case for the majority, it is not everyone that is under those conditions, as the study will show. Thus, this research is an opportunity to understand this perception of townships.

1.3. State of the art

The Apartheid city is a strong topic in South Africa and one easily related to cities and land use structure. The location of certain functions in specific areas differentiates parts of the cities/town and imposes restrictions on movement between them. Through urban planning, racial segregation was achieved in South Africa resulting in places with a racially segregated morphology, stressed by inequality in terms of infrastructure and equipment, as well as the socio-economic status of people. The case study of Vrede aims basically to bear witness and show how it falls under the category of an apartheid city model based on the framing of the theoretical work.

1.4. Objective

The objective of this dissertation is to answer one primary research question: is Vrede an apartheid city? To this one, I added a secondary one: is the apartheid city model a tool/instrument to build or an apparatus to destroy?

For the illustration of what I mean, I draw this parallel between a tool or instrument that is found in masonry, as a trowel used to level and spread mortar in brickwork to build the walls of a house. To my view, the apartheid city model may serve a similar purpose by bringing about urbanism, namely the modern movement within the territory of South Africa. The author of the dissertation views the dynamics of the apartheid city as a tool/instrument to build. Perceiving the apartheid city model as an apparatus to demolish follows the idea that was behind the building of the Berlin wall, taken as a conceptual guide in order to answer the main research question.

Focusing on how the apartheid city model impacted the society in terms of economics, geography, and social structure, i.e., namely regarding the location of services, equipment, road network, demographics, etc., as well as through

literature review and some mapping, my purpose was to gather the information I could latter transfer to sustain the analysis of my hometown Vrede. Its analysis will give me a much broader understanding of how and why the apartheid cities were designed the way they were, better preparing me to operate as an architect in my own country, where the segregation of the urban landscape is still a true reality. Thus, another aim of this dissertation is for me to gain more knowledge within the field of urbanism, as I am planning to further my studies on this topic.

1.4 Methodology

This research was a twofold approach: a literature review to background the theoretical and conceptual study and a case study. The former focus on answering the title of the dissertation. The latter produces analytical maps that provide reasoning for answering the questions framed by this dissertation. The maps were designed by the author and refer to urban planning analysis techniques aiming at understanding the space.

Part 1: Theoretical and Conceptual Literature Review

2. History and evolution of the apartheid city

3. Segregation and the Apartheid city model in the Republic of South Africa

4. Apartheid city model as a tool to producing a racially segregated urban morphology

2. History and evolution of the apartheid city model

To understand the structure or model of the apartheid city a brief understanding of the history behind the model is necessary. Fig. 4 shows the evolution of the spatial organisation of South Africa during the apartheid regime era, a period that was formally introduced approximately in the 1950s and lasted up until 1994 when freedom from oppression in South Africa was gained for the native Africans.

2.1. 1600-1795 | Early colonial planning in South Africa

According to R. J. Davies (1981), European colonisation in South Africa began with the settlement of the mercantile Dutch in the cape in the year 1652. As the time past, the colony grew through the importation of slaves and the increasing number of mixed populations (coloureds). This led to the expansion of the territory through the dispersal of the nomadic pastoralists who laid a foundation for the development of rural areas (Davies, 1981:59).

A. J. Christopher (1983) compares urban segregation in South Africa with the expression of colonialism between the years of 1806 to 1948, suggesting that the urban structures allied to urban segregation are foundations of the English experience. The dominant urban component shows the influence of politics, such as the National Party, being the ruling power of the time. This author holds that the British colonial city and the European colonial city are a driving force for the evolution of the apartheid city, having strong links to colonialism and racialism (Christopher, 1983:147).

Diaan van der Westhuizen (2011), while studying Bloemfontein (one of South Africa's three capital cities and the capital of the Free State province), showed that the interaction between the urban morphology and the process of place making in South Africa owes its roots to the colonial town planning of South African cities, where gridiron and axial arrangements were the Important instruments of ordering human settlements. According to the author, the intentional positioning of institutional buildings contributed to a coherent legibility of the city structure, which was in favour of the Dutch, the British and, at a particular stage, the pernicious apartheid government socio-political goals (van der Westhuizen, 2011:90).

When considering the design ideology used for Bloemfontein, one of the principles of colonial planning was the placing of streets and prominent places, as the CBD, located at a high point. Van der Westhuizen bears to this through the words of Captain H. D. Warden, who established an army base over the hills because of the need to survey the area which was then called *Transgariep* and later changed to *Free State* (van der Westhuizen; 2011:93).

> First, however, it is important to acknowledge the importance of the topography and natural landscape features (hills, streams) which became important reference points for the positioning of the first streets in colonial settlements (Warden, *cit. in* Van der Westhuizen, 2011:91).

2.2. 1800-1950s | Urbanization and Industrialization in South Africa

The industrial revolution began in England in the 18th century. According to Mohajan (2019), during this period a paradigm shift took place where human and animal technological labour transitioned to machinery, mass production of goods and there was a new way to manufacture chemicals and iron production. The iron and textile industries played a leading role in the industrial revolution, which brought about enormous socio-economic changes in England (Mohajan, 2019:377-378).

From 1780 to 1800 up to 1840, there was the peak of the industrial revolution in Britain, followed by its next wave, from 1840 to 1857, in other countries of the world, like the United States of America, France, Germany, etc. (van ECK, 1951:3-4). As in Britain, industrialization also caused changes across the world, which came with great socio-economical and spatial transformations in the respective countries. South Africa was no exception.

During the industrial revolution, taking place in South Africa between 1800-1900, the interests of the settlers in the country were aligned with capitalism activities and entrenched in a capitalist's market. This alignment arose firstly from agriculture and small scale urban oriented activity. Because of the British colonies' external investments, economic and urban expansion took over in large proportions in the South African territory. The development and discovery of mineral mines – diamonds mines in Kimberly, in the year 1869, and gold in

Johannesburg, in the year 1885 – was an accelerant for capitalists to use as a prime economic generator (Davies, 1981:60).

Jan Smuts (prime minister of the Union of South Africa between 1919-1924 and 1939-1948) and Louis Botha (first prime minister of the Union of South Africa between 1910-1919) participated in the National Convention (1908-1909) where proposals for the creation of a state monopoly railway transport industry in South Africa were elaborated. As Section 129 of the resulting Act of Union phrased it, its specific duty was to support

> …agricultural and industrial development within the Union, and the promotion by means of cheap transport of the settlement of an agricultural and industrial population in the inland portions of the union (*cit. in* Renfrew, n.d.:99).

The simultaneity of the construction of the railroads and the discovery of a rich hinterland where the British needed to assert their domination influenced the position of the new towns. Indeed, the reticular pattern implemented led to the foundation of towns along the new rail communication axis (Figure 1).

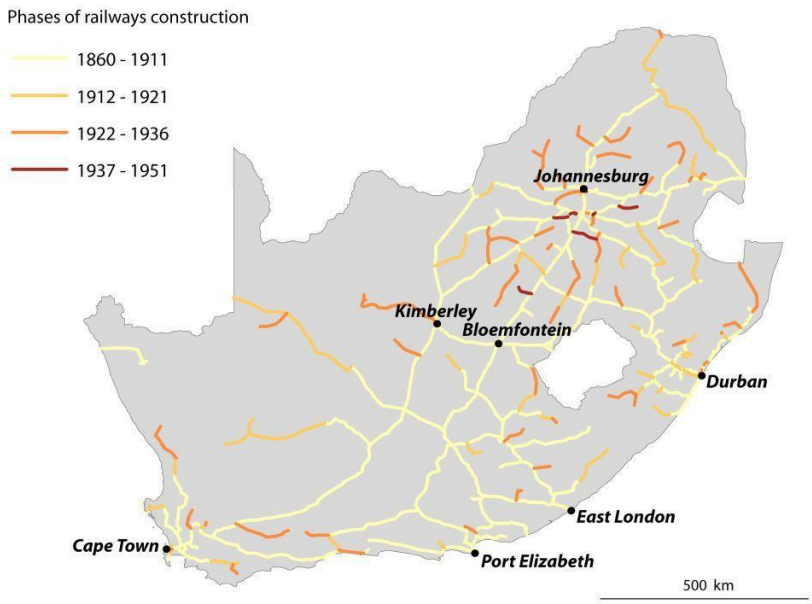

Figure 1 | Industrial spatial distribution of railways in South Africa
Source | Baffi, et al. (2018:4)

South Africa's urbanization differs from what can be observed in other African countries in various respects. First, South Africa was urbanised earlier than other parts of sub-Saharan Africa because of its distinctive economic history of mineral extraction and associated industrialisation. By the late 19th century, it was still a

sparsely-populated territory with a largely agrarian society and extensive arid regions, nonetheless holding a few localised areas of great industrial dynamism. These emergent cities quickly became powerful drivers of growth with substantial multiplier effects on the economy of the whole region and far-reaching social consequences as they suctioned large quantities of labour from the wider sub-continent. The urban population of the country would rise rapidly during the 20th century, and the number of urban areas would increase more than ten-fold. The urban share of the national population increased from about 17% in 1900 to about 65% today, making South Africa one of the most urbanised countries on the continent (Turok, 2014, *cit. in* Baffi et al., 2018:1-2).

Indeed, the dynamism of the industry was also attributable to the influx of a large workforce. Taking the case of Johannesburg, low skilled workers – mostly native Africans – reached the city by train from the most remote parts of South Africa and neighbouring countries, whereas qualified workers arrived from England or other British colonies. The importance of the population influx to Johannesburg explains why only ten years after its foundation, its population exceeded Cape Town's. Hence, the mining discoveries in Johannesburg led to a major upheaval in Southern Africa due to the synergies between urban growth, industrialization and extension of the railways (Baffi, et al., 2018:4).

Rapid industrialisation attracted more and more people from the countryside to migrate towards the cities in search of livelihoods. The growing black African population in the cities produced a negative reaction from the ruling white minority group, which resulted in stringent state controls to restrict further urbanisation (Baffi et al., 2018:2)

2.2.1. 1898 | The Garden City in South Africa

Taking from Robert Fishman, the Garden City was designed by Ebenezer Howard, an Englishman who was a clerk but reformed himself to become an urban planner. Howard believed that at the time, in the late 19th to early 20th century, the economic life of England was in a dire state, with the political power concentrated in the hands of the few. To him, this resulted in the monopoly of landholding by capitalists that brought inefficiency in the agricultural market, and

therefore the farm workers ran away from the farms to the urban slums where they were exploited by capitalists within an industrialized city (Fishman, 1982:30).

Reacting to this, Howard sought to decentralise power which led him to the invention of the Garden City in the late 1890s, which principles he delineated in Tomorrow: *A Peaceful Path to Social Reform* (1898), later reprinted as *Garden Cities of To-Morrow* (1902). He envisaged a model of a sustainable community, merging the best qualities of the city and the best ones of the countryside. A fundamental premise was Howard's hope for a cooperative civilisation that could be fulfilled in small communities embedded in a de-centralised society. Howard considered the use of agriculture to limit the growth of the city and to allow other enclaves of cities to emerge as the garden city had a limited number of citizens. Also, agriculture, as well as industry, were to serve as an economic base for the people of the city as they would be consuming their products and selling at the markets to making a living out of the garden city (Fishman, 1982:30).

The characteristics of the Garden City, according to Fishman, and based on Howard's diagrams, are that it is sized for 30.000 inhabitants, and surrounded by green belts of parks and farms, industry and a railway line. It occupies 1000 acres out of the 5000 acres reserved for farmland and forests. When it reaches full capacity, a sister Garden City is to be built next to it. The plan is symmetrical and circular, and this geometric form makes it efficient. Within the city, there should be quiet residential neighbourhoods and full range commerce, industry, and cultural activities. The centre of the town is a green park provided for recreational facilities and surrounding it are the commercial areas and in the centre of this central park there is a meaningful building, like a library, a concert or a town hall. Howard postulated that the highest values of the community are culture, philanthropy, health and cooperation and these should be brought together through meaningful building (Fishman, 1982).

In the Garden City there are two types of centres, the neighbourhood (wards) centre and the one civic centre. Each ward has about one-sixth of the town population, taking about 5000 people or about 1000 families. The lots for the residential span are about 20ft by 130ft (6m by 40m). The middle of the wards is a school. To separate the residential areas, Howard placed the factories at the

periphery, still close to the workers' homes, as well as a circular railroad that surrounds the town and connects it to the main railroad line (Fishman, 1982).

After World War One (WW1), according to Boyfield and Oviri, Pinelands, in Cape Town was amongst the earliest pilots of the modelled Garden City in Africa. Reacting to the Spanish influenza epidemic of 1918 and the many dead all over the world, Pinelands Garden City was built (Boyfield and Oviri, n.d.:5-6). Its founder was a businessman, politician and visionary – the Honourable Richard Stuttaford, who was born in 1870 and died in 1945. According to GCCTC (2019), the Garden City in South Africa was built under the pretext of providing safe and aesthetically pleasing environments in which people could live. As one of the principles of making the Garden City in South Africa was the building of houses at the lowest cost without compromising its quality, namely of its materials.

Richard Stuttaford, who was a businessman and politician, and came to be the Chairman of the Board of Trustees as well as the founder of the Garden City in South Africa, had an inclination towards Ebenezer Howard's Garden City since he came across his work 'Garden Cities of Tomorrow' way before 1919, when Pinelands Garden City it was developed in Cape Town. He was so enthusiastic about it that he took a trip to England to meet Howard and discuss with him his idea of building a Garden City in South Africa. Stuttaford faced several setbacks as he was targeting to lower rents, and this was not profitable. He was rejected several times by the state until the formation of the Garden Cities Trust, in 1919 (Cuthbertson, 1979:5-6). Indeed, on the 19th of June 1919, the State decided to give the Garden Cities board of trustees the five hundred morgens of the Uitvlugt forest reserve, in which the £10 000 British pounds donated by the chairman of the board of trustees allowed to commence the construction of the Pinelands Garden City in Cape Town (GCCTC, 2019:4-7).

For the first time in South Africa, a competition (for town planning) to design the Garden City was established by the secretary of the Garden Cities Trust, Stuart. P. Horne, and

> …the competition rules specified, for the first time in South African town-planning, the areas which were to be apportioned for housing, roads, open spaces, and (…) schools, markets, churches, shops, a town hall, museum and post-office. (Cuthbertson, 1979:7)

However, the first plans of the Pinelands Garden City (from the local completion) were rejected by Sir Raymond Unwin, the planner of Letchworth, the first garden city built under Howard's model, in England. The design was then commissioned to the firm Thompson, Hennel and James, of Victoria Street, London, who followed the principles delineated by Ebenezer Howard (Cuthbertson, 1979:7).

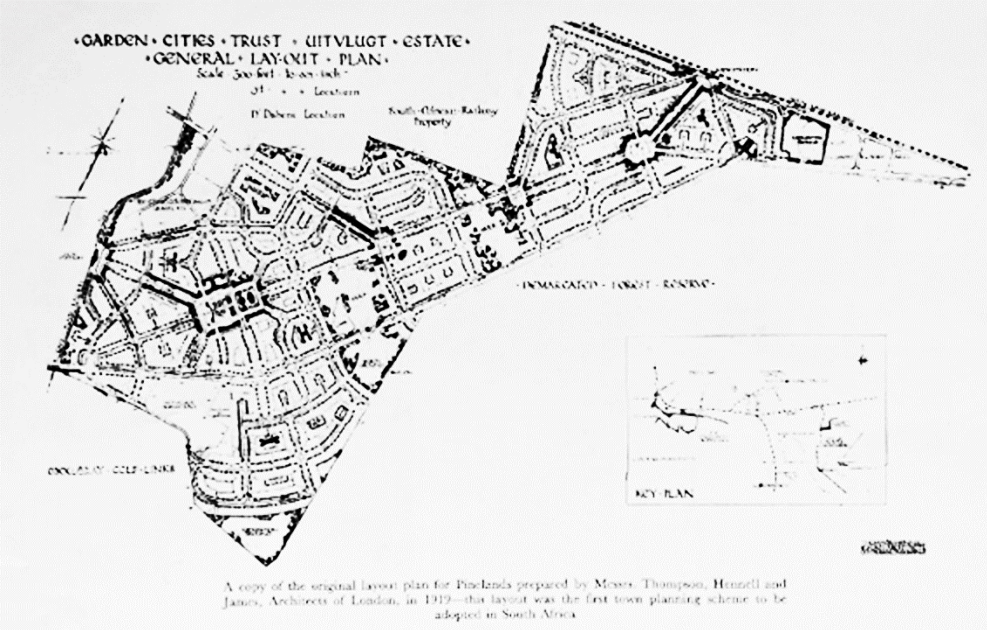

Figure 2 | Plan of Pinelands Garden City, by Thompson, Hennel and James (1919)
Source | Garden Cities (1972:15)

Albert J. Thompson was commissioned to supervise the development scheme, sailing to South Africa by the end of 1920, and immediately set to work. Once he inspected the site, he 'modified the original plan'. Still, Maganga (2022) states that Pinelands was closely modelled on Letchworth Garden City, and he adds a brief description:

> The roads and paths that cut through Pinelands were carefully crafted to allow for vistas looking towards clusters of trees or Table Mountain. Shops were designed to be easy to reach without being obtrusive, and the houses were designed in an adapted English vernacular style – seeking to combine a pleasing appearance with comfort and affordability. (Maganga, 2022:n.p.).

As time passed meeting a lot of setbacks over the years, only in 1925 the railroad was erected, and a police force established. Sports facilities and road infrastructure were also built. In 1924, Pinelands library, an educational facility, was raised, and St Stephen church was constructed in 1926. The plan contained

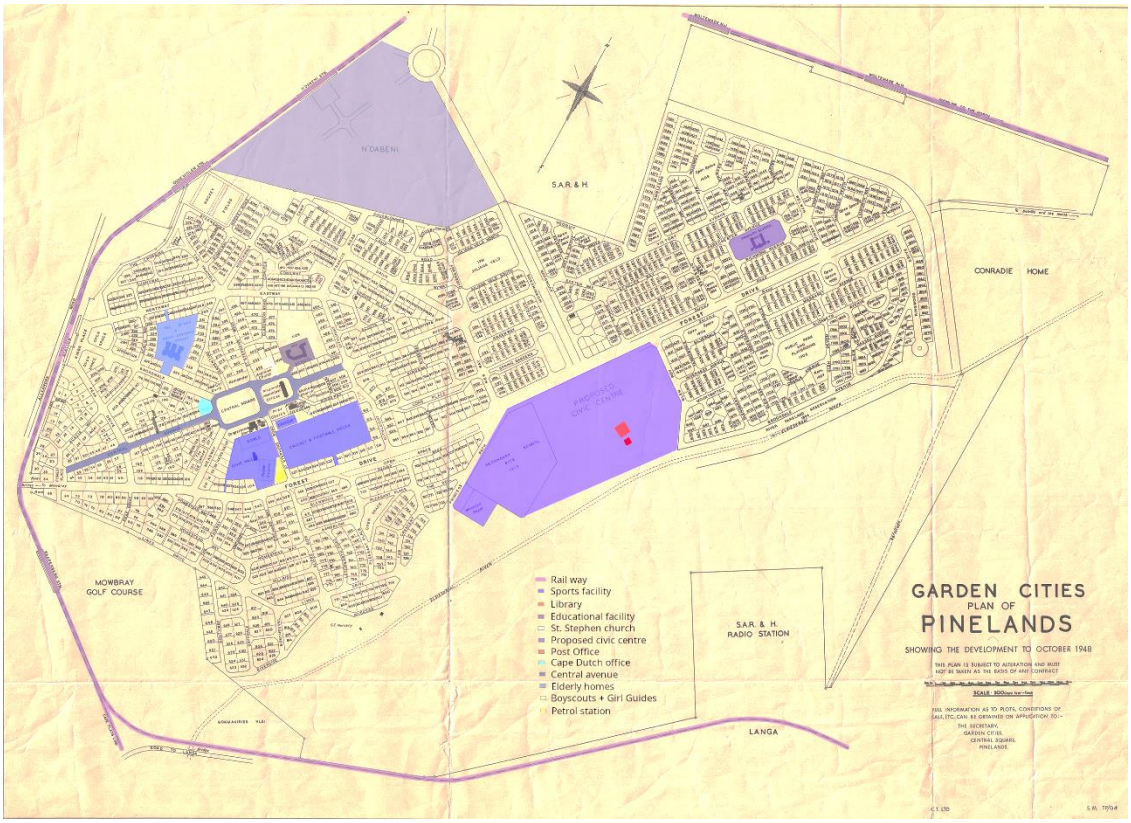

Figure 3 | Plan of Pinelands Garden City (showing the development to October 1948)
Source | Adapted from https://digitalcollections.lib.uct.ac.za/collection/islandora-19711

a Civic Centre, and in 1926 the first school was opened on Central Avenue, and in 1931 Pinelands Primary School was erected in Central Square. Also, in 1926 was the inauguration of the postal services, and in 1930 the 'Cape Dutch' office building was constructed on Central Avenue. That same year began the macadamisation of the access roads. Six elderly homes were raised in 1929, the first being the 'The brown and Annie Lawrence Home'. In 1933, some sites were set aside for Boy Scouts and Girl Guides Associations. The first petrol filling station was constructed in 1940, and water-borne sewage system was set up in 1938 (Figs. 2&3) (Cuthbertson, 1979:9-11).

The characteristics of the garden city in South Africa were such that any commercial building in the garden city would not be sold to private individuals but be leased to the individual. However, as much as the garden city in Pinelands was designed under the influence of Howard, it does not completely embody the tenets of the garden city he envisioned. According to Cuthbertson, Pinelands Garden City lacks the surrounding agriculture that would supply the inhabitants of the city, as well as the industrial zone. Despite these lacking elements, Cuthbertson acknowledges the success of the experiment in creating a new town

that can be improved and replicated throughout South Africa (Cuthbertson, 1979:9-11). Still, according to Boyfield and Oviri (n.d.:5) Pinelands Garden City was polluted by its links to the apartheid regime.

As early as November 1924, the Trust aimed to expand the intervention to the surrounding lands of N'dabeni location, controlling its development so that Pinelands' Garden City would be protected, the purpose was to assure that its planning principles would be maintained in its vicinity. The N'dabeni area would thus be designed along the lines of the garden city into a '*non-European*' area, that is, an area that would accommodate '*non-European*' housing, namely '*dwellings suited for Africans*'. However, despite being initially rejected on the grounds of inefficient funds, five houses ended up being built only to be '*subsequently absorbed into the N'dabeni industrial zone*' (Figs. 2&3) (Cuthbertson, 1979:9-11).

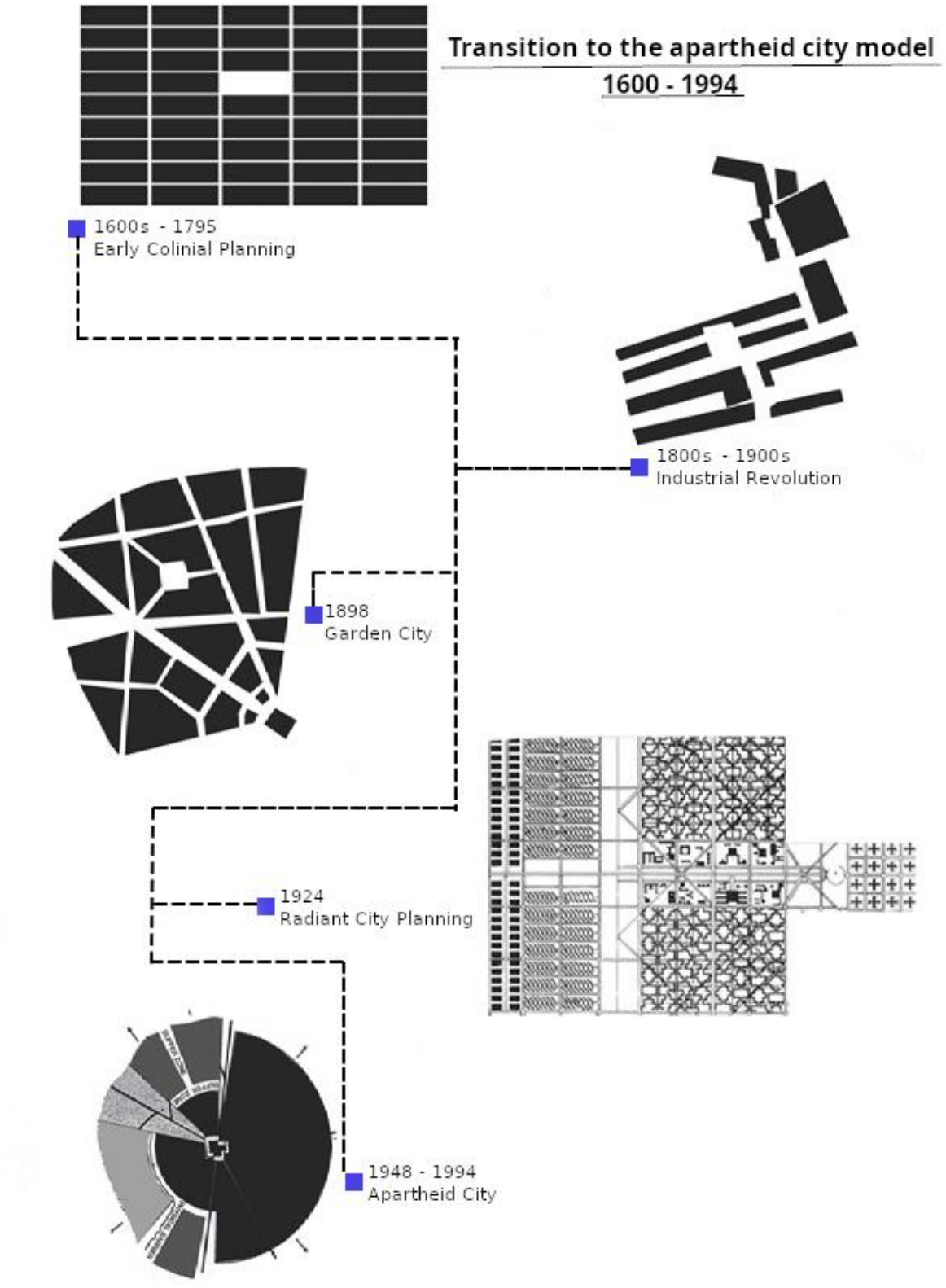

Figure 4 | Transition to the Apartheid City model planning (generic evolution)
Source | Image adapted and modified by author from Combrink (2018:214)

2.2.2. 1924 | Modern Movement (Radiant city planning) in South Africa

To understand the evolution of the territory of South Africa under this topic, E. J. Haarhoff (2011) provides a hint where to trace the development of the close relationship between local and European architects and urban planners which led to the adoption of the Modern Movement in South Africa. Haarhoff also claims that the Modern Movement in architecture actually appeared much earlier in South Africa than when it is compared to The United States of America and England (Haarhoff, 2011:185).

In terms of architecture in South Africa, architects like Mies Van der Rohe, Le Corbusier, and Walter Gropius authored some buildings in the fabric of South Africa (Haarhoff; 2011:186). Another major influence associated with the Modern Movement in South Africa is Brazil. Arthur Baker (2015), quoting Fassler (1956:178), tells the Brazilian impact can be observed through the works of Helmut Stauch, Philip Nel and partners, and Meiring and Naúde, in Pretoria and Cape Town. Yet another legacy of Brazilian influence can be traced to the graduates of the Pretoria school, which Barker says had had a long-lasting effect on them (Barker, 2015:73); these students would later be working in the country.

According to Barker (2017) there are three moments of the Modern Movement associated with South Africa. He first explains the Modern Movement phases before they were disseminated across South Africa. The first one at its fundamentals sought the new and reacted or rebelled against the use of tradition. Barker says that this first stage mitigated between the classical, democracy and autocracy, and craft and industrialization. Architects who were part of this phase of the Modern Movement held familiar beliefs about the human condition that bordered on social utopianism (Barker, 2017:3).

The second phase of the Modern Movement can be traced back to the last decade before the commencing of WWII. Barker quotes Joedicke (1969:16) to tell that in Europe it spanned a period of ten years, from 1930 to 1939, when architecture was influenced by climate, topography, and tradition. After the CIAM of 1928, a new tradition of architecture was envisioned as a critique of to '*pastoral modernity*' (Barker, 2017:3). The third wave of the Modern Movement developed

after WWII, which was a point in time in Europe where there was a need for social, physical and economic reconstruction. The CIAM of 1947, still according to Barker, was the reconsideration of the original orthodox position to argue that architecture could meet both the material and emotional needs of society (Barker, 2017:3).

In South Africa, the first wave/period of the Modern Movement was recorded in 1926, by A. Stanley Furner, an architect coming from London to a position at the School of Architecture in Johannesburg, who published a paper in the '*South African Architectural Record'* journal. According to Hebert (1967:26), quoted by Barker (2017), Furner said in this seminal paper that the future of architecture shows succinct comprehension of the logic and philosophy of modernity, providing a vivid distinction in issues of style and aesthetics (Barker, 2017:3). About it, Nicholas N. Patricios (2000) acknowledges the '*influence of Le Corbusier was evident in the paper*' highlighting the fact that '*had brought a copy of the book* Vers Une Architecture *with him*' (Patricios, 2000: n.p.).

Then came along Rex Martienssen, who first met Le Corbusier in 1934 and with whom kept regular contact both on a personal level and through students sent to visit him. Indeed, according to Chipkin (1993, *cit. in* Patricios, 2000), Le Corbusier himself '*called these architects from Johannesburg and Pretoria* le groupe Transvaal'. Martienssen pioneered for a short period of time the movement to domestic architecture in South Africa, in the 1930s, and laid a foundation for the distillation of the Modern Movement tenets in the Transvaal. Together with Gordon McIntosh and Norman Hanson (later the *Transvaal Group*), he wrote a manifesto that held nobility of the new technologically and functionally pursuit of architecture, which was published in '*the one issue of the* Zerohour *publication'*, in 1933, and that he later showed to Le Corbusier (Barker, 2017:4; Patricios, 2000: n.p.). According to Patricios (2000: n.p.), '*By the end of 1936* le groupe Transvaal *had produced a considerable number of designs in the international style.*' This, however, does not seem to reflect city planning as, although the Group followed Le Corbusier's urban theories and plans, the Town Planning Congress exhibition in 1938 only showed two town planning projects, one from the Transvaal Group and the other designed by architecture students (Patricios, 2000: n.p.).

The third wave of the Modern Movement in South Africa, according to Barker, was concerned with mitigating the effects of climate and the fundamental principles of structural and spatial efficiency which developed ten years post-WWII in South Africa (Barker, 2017:4-5).

3. | Segregation and the Apartheid city model in the Republic of South Africa

Apartheid did not begin after WWII, but it dates back to the early 20th century through legislation/acts such as the Land act of 1913. This is one example, which consolidated and restricted the natives' rights to land ownership except in designated areas (Smith, 1992:2). Figure 5 shows the segregation city model before the actual application of the apartheid city, which is characterized by the following principles, according to Davies (1981:94):

1) Dominant White Central Business District with a CBD Frame;

2) Sub-ordinate and peripheral Indian and/or Chinese Central Business Districts;

3) Industrial sectors in White ownership but constituting a common employment space;

4) A White residential core with sub-urban extensions in sectors of desirable environment, strongly differentiated by socio-economic status;

5) Centrally located Indian, Coloured and Chinese residential enclaves in older inner residential areas;

6) African working zone single quarters in barracks and compounds;

7) African, Indian and Coloured peripheral settlements in small townships, small patches and larger concentrations or zones of informal housing and privately developed housing of highly mixed quality;

8) African domestic quarters, widely distributed;

9) Mixing zones that represented Black diffusion into White residential areas.

These principles applied to land formed a segregated city and were used to separate people before segregation was formalized. This was happening before 1948 leading up to 1950 when the complete formalization of racial segregation was applied, according to Davies (1981). Maylam (1990) points out that there were four phases that took place in terms of racial urban segregation in the apartheid city of the Union of South Africa. Phase one took place pre-1923, phase two occurred between 1923-1950/2, and the third phase appeared between 1950/2-1979 (high apartheid); the last phase took place post-1979, until 1994, through racially aimed regulations, spatially segregating the morphology of the South African cities (Maylam, 1990:58-74).

Doug Hindson (2011) comments that the apartheid city was created to amend the urban crisis of the 1940s as a disguise to manage the interest of the National Party (ruling apartheid regime party of the time) of urban racial segregation.

Racial groups were channelled into clearly defined spatial zones within the city and illegal inhabitants were forced out to the homelands (Hindson, 2011:75).

3.1. The implementation of the tenets of the Apartheid city model

According to Kloppers and Pienaar (2014), before 1950, the segregation ideology was promoted by the government of the time through a number of acts that were enacted to reach or form what was then called the apartheid laws after 1950 (Kloppers and Pienaar, 2014). In particular, within the scope of this dissertation, two acts became prominent for the introduction of the apartheid city: the Native Land Act of 1913 and the Group Areas Act of 1950. These two acts laid a foundation for apartheid and territorial segregation laws (Kloppers and Pienaar, 2014:681).

Kloppers and Pienaar further quote directly 'The Native Land Act 27 of 1913' to claim that it was the introduction of ethnic differentiation as a fundamental distinction that was desirable, based on a mistaken belief. These authors substantiate their argument using the Native Land Act according to Gazette extraordinary No. 380 of 1913:

> *'a native shall not enter into any agreement or transaction for the purchase, or hire other acquisition from a person other than a native, of any such land or of any right there to, interest therein, or servitude there-over; and,*
>
> *a person other than a native shall not enter into any agreement or transaction for the purchase, hire, or other acquisition from a native of any such land or of any right thereto, interest therein, or servitude there-over.' (Gazette cit. in Kloppers and Pienaar, 2014:682)*

Unpacking this act, Kloppers and Pienaar suggest that it is vivid that the intentions of the act were to introduce, in the landscape of South Africa, segregation of the territory according to race, based on the fact that natives were not allowed to own land (Kloppers and Pienaar, 2014:682).

Further elaborating on this idea of territorial segregation according to race, Turok et al. (2021) say that the Group Areas Act of 1950 was notorious and responsible for using urban town planning techniques to separate the territory of South Africa based on race. On the one side, this took place by the usage of buffer strips to create hierarchy by allocating large central areas to the White group, and to the other, by allocating sites at the peripheries and in between coloureds to the black Africans (Turok et al., 2021:74).

According to the Statutes of the Union of South Africa in 1950, the Group Areas Act No. 41 of 1950 states that:

> *'This act provides for the establishment of group areas, for the control of immovable and the occupation of land and premises, and for matters incidental thereto' (Cit. in Parow, 1950:407)*

The Group Areas Act No. 41 of 1950 ushered in the final draw and made it clear what were the intentions of the then-ruling regime, according to Kloppers and Pienaar (2014). In their writings, they state that the party then ruling had malicious intent when enacting this Act, which was used to justify the exoduses that took place all over South Africa at the time by designating people in the territory according to race and ethnicity. In their paper, Kloppers and Pienaar (2014) quoted Schoombee (1985) to say that the function of the Group Areas Act was, in essence, to control the ownership of immovable property, occupation, and the land 'use' (Kloppers and Pienaar, 2014:685).

Adding to this, Kloppers and Pienaar highlighted the role of the Group Areas Act No. 36 of 1966 as this act was a consolidation of the Group Areas Act of 1950 regulations, supporting it to achieve its objectives. According to them, the Native Trust and Land Act No.18 of 1936 stripped black South Africans of their right to own land or even to live outside demarcated areas without proper authorization from the relevant authorities. Thus, this Act furthered the objective of racial segregation, which eventually necessitated the need for land reform and completed the desires of the then-ruling apartheid regime by pointing out three groups to be separated in the landscape of South Africa according to race groups: the Bantu people, the White group, and the Coloureds, who were designated to different locations (Kloppers and Pienaar, 2014:686).

3.1.1. The tenets of the Apartheid city model

The segregationist principles related to the make-up of the apartheid city model, as laid down by Davies (1981), and previously listed, were extensively elaborated by Franco Frescura (n.d.). They are presented below in a summarized manner:

a. **Segregated residentia**l **areas** referring to the mono-functionality of space in terms of race and ethnic groupings.

b**. Buffer zones** referring to the physical separation or division of groups by means of race through a buffer zone comprised of vacant land, with a width between 100m < width ≤ 250m.

c. **Natural features** relating to elements integrated into the buffer zones in cases where construction is not of ease, as for example in places like swaps or where the ground soil is not suitable for construction.

d. **Industrial belts as buffer zones** referring to transitional zones where the blue-collar workers made their income, and which were used to enforce racial segregation in the landscape.

e. **Extended city planning** referring to the way that the spatial system of the apartheid city is set up, and the township is located at a distance from the CBD (i.e., at the peripheries).

f. **Extended road links** referring to the wide spread of suburbs linked by a relatively long travel connecting road network.

g. **Military control** referring to the black residential suburbs located close to the military base.

h. **Radial street planning** related to the street layout set in a way that a state is able to observe the native ethnic groups is always possible.

i. **Single access** to a peculiar trait that limits access/exit to a native ethnic group and race groups deemed non-European through just a few points of access into the city.

j. **Social infrastructure** referring to the lack of infrastructure and equipment in the homelands.

k. **Housing** referring to houses poorly built, small, and devoid of internal doors, being the yard/plot of 300 square meters for the townships, and spanning to about 700-800 square meters in the areas where the white population resides (Frescura, n.d.:2-4).

The apartheid city model, in Figs 4 and 5, illustrates the principles outlined and summarised by Franco Frescura, which base on and are an evolution of those drawn above by Davies for the segregation city model. The difference between

these two models is that some principles were added to the former, as a consequence of the implementation of the ideology of the apartheid regime: the usage of buffer zones to physically separate people according to race, the placing of military bases near townships where the native Africans are concentrated for surveillance, and both the extended road links and the single access planning that were integrated into the apartheid city.

3.1.2. Evolution of the Segregation city into the Apartheid city

Davies (1981) tells that two improvement phases that mark intra-urban spatial arrangement in South Africa are the Segregation city model and the Apartheid city model, the former finding its roots in colonial times and the latter being a consequence of the formalisation of the apartheid ideology in the territorial organisation of South Africa, in 1948 (Davies, 1981:63).

According to the author, the differentiation between the two models is up to the extent that, in the segregation city model, formal control was exerted via political economy and spatial arrangement and not by social ordering, whereas in the apartheid city model is conceived under a thorough sub-structure of economic and social control covertly disguised for economic and social manipulation for urban racial segregation (Fig. 5) (Davies, 1981:63).

The segregation city model presented in Fig. 5 is modelled over the population of Durban KwaZulu Natal, which in 1970/2 had 852.748 people. According to Davies, this model empirically demonstrates urban racial segregation as being composed of 37.9% of native Africans, 34.5% of Indians and Asian descendants (Chinese), 5% of the Coloured population, and 22.6% of the White group (Davies, 1981:64).

The principles of the apartheid city model as applied in South Africa are also schematically indicated in Fig. 5. It shows how native Africans were separated from one another according to their ethnicity: the Zulu were separated from the Xhosa, and the Sotho were separated from both the Zulu and the Xhosa. The Tswana were separated from the other native ethnicities, and the other races, such as the Chinese and the Indians, were also allocated their own space. This is very much evident in the city of Durban. These areas were so-called the ‘Black spots’ (Harrison et al., 2007:27-29).

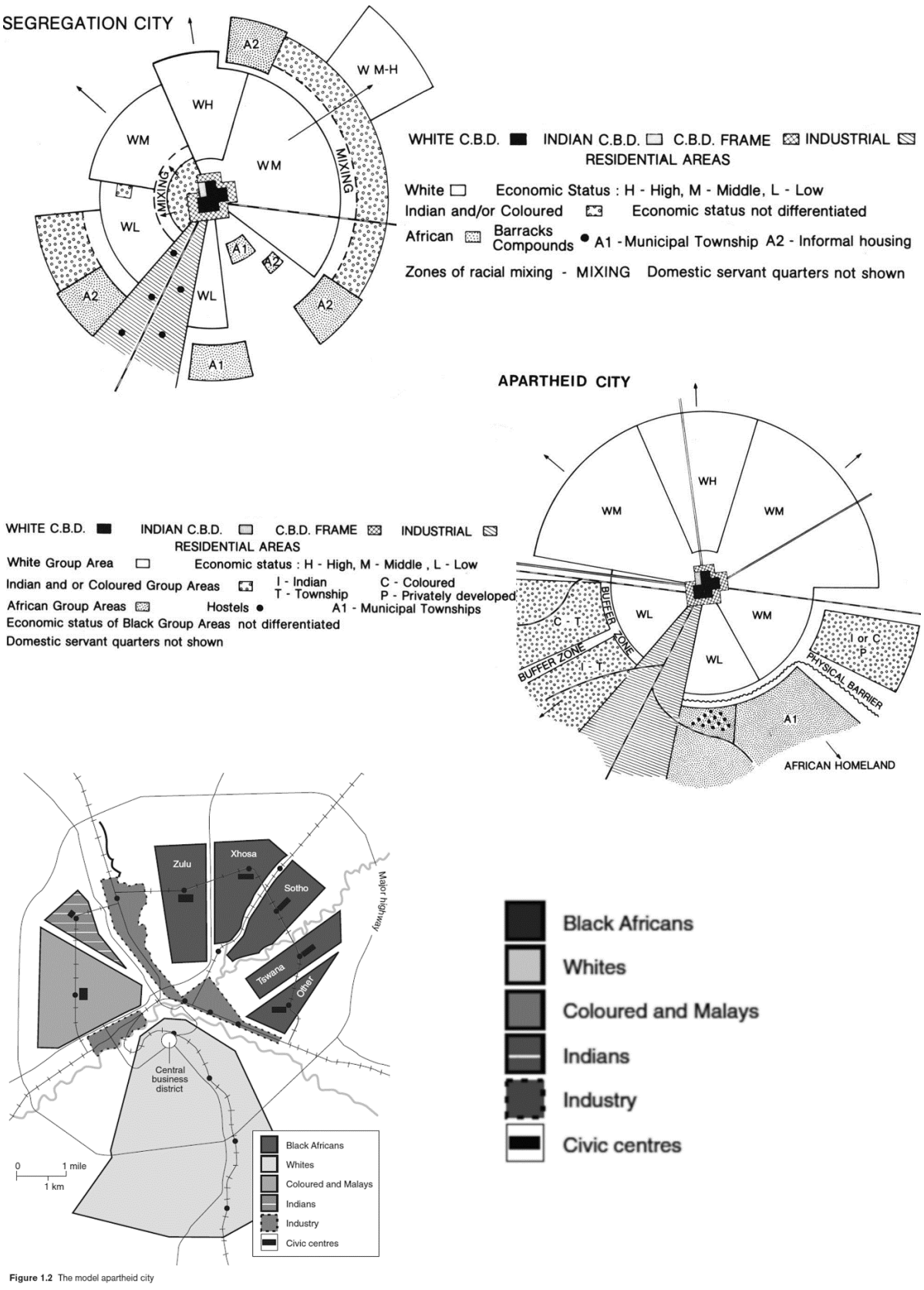

Figure 5 | Structural organisation of the segregation and the Apartheid City models
Source | Davies (1981:64, 69) and Harrison et al. (2007:28)

3.1.3. The evolution of the Apartheid city model – Durban and Pretoria 1951-1970

Figure 6 (below) shows Durban and Pretoria being compared as both segregation cities (1951) and apartheid cities (1970). By way of it, demonstrates how the sectorial organisation according to race and in relation to the working zones have changed, and how it was used as design criteria to organise both cities (Davies, 1981:70).

Referring to it, Davies further elaborates that because of the political power that was behest to the white population, within their specific residential areas, little to no intervention was performed on the existing spatial distribution between 1950 and 1970 in both cities. The changes reflected in the diagrams 1950-70 show this in a clear way: the residential area of the White group keeps its place, next to the city centre; however, it expands taking over the areas freed by the racial exodus subsequent to the implementation of the apartheid regime. In both cases, as in the original model, the core of the cities is a white Central Business District (CBD), which is structured in a manner that the white residential areas are consolidated around it. According to Davies, this aimed to favour the White group in terms of their socio-economic status, preserving it from changing and being impacted in a negative fashion (Davies, 1981:70).

In contrast, the areas occupied by the native Africans significantly changed between 1950 and 1970 in both cities, as these people were moved into the peripheral sectors, farther away from the CBD. The placing of the townships at the peripheries, according to Davies, resulted in substantial costs of commuting to access the CBD, where work took place, impacting negatively on the Africans' economy as they would be paying for the transport. This further enforced the inequality in terms of the socio-economic status of the non-White racial groups, rendering the Africans at the bottom of the scale, even if the placement of industry, also in the peripheries, tried to mitigate the commuting problem (Davies, 1981:70).

According to Mthembu (2019), the result of the apartheid city was a territorial dominance that showed deep racial division in the organisation of human settlements, as will be later illustrated in the practical part of this dissertation.

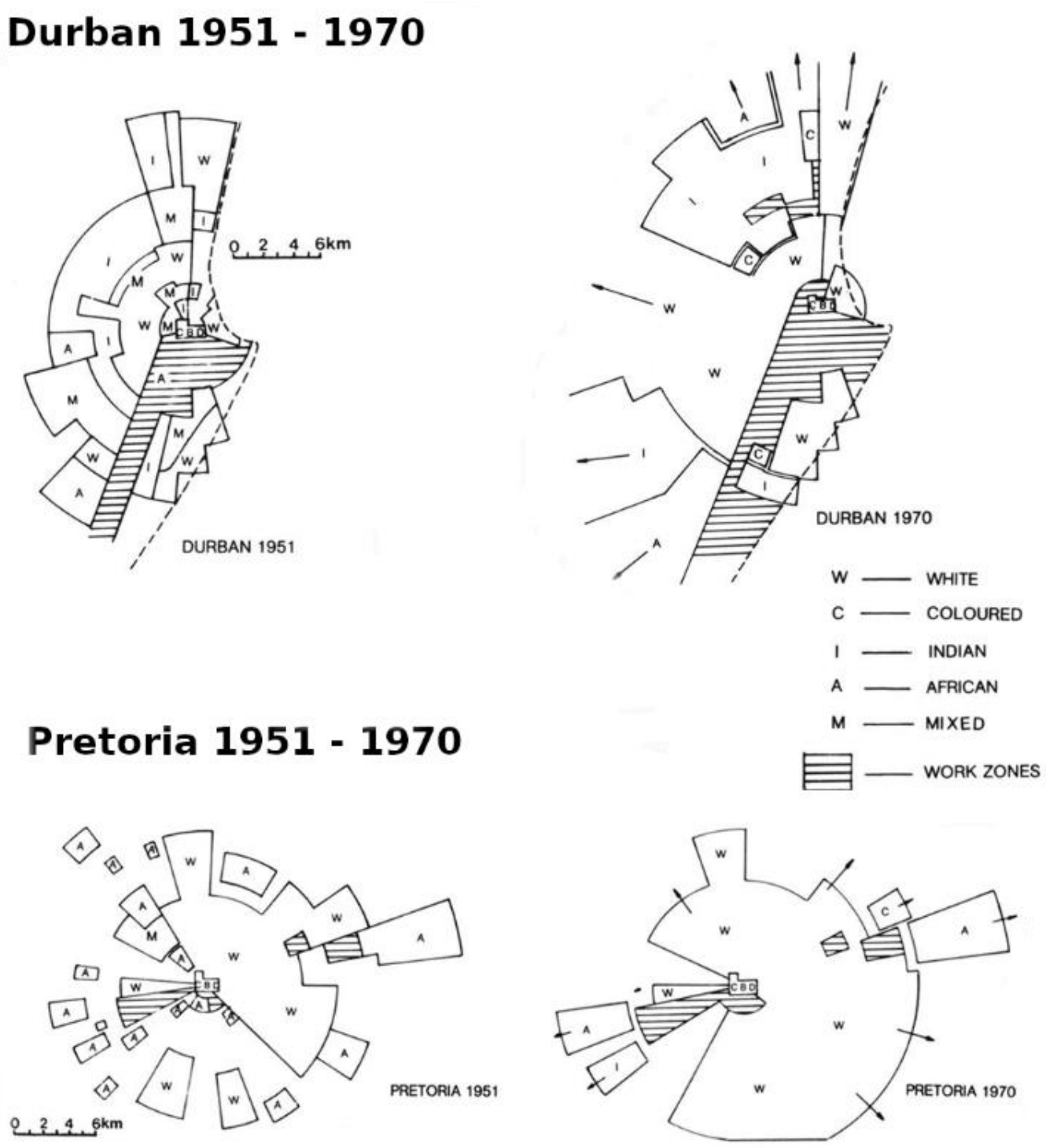

Figure 6 | Changes resulting from the application of the apartheid city model in two South African capitals
Source | Images adopted from Davies (1981:70)

3.2. The Apartheid city model and its urban planning background

To find out what was modified by the application of the Apartheid city model around the mid-20th century (1950), regarding its theoretical concept, a review of the historical background previously presented is needed. The elements that made the Apartheid city model and perpetuated the apartheid ideology were taken from various urban territorial organisation strategies/techniques, which were developed before the apartheid city model and served different and specific purposes within its structure.

To propound the notion that the apartheid city model was synthesised from the tenets of the Modern Movement, I refer to Fatima Friedman (2000) who suggests, by quoting Parnell and Mabin (1995), that apartheid urban design, far from being unique, obtained its ground principles from CIAM (Friedman, 2000:19). Adding to this idea, Haarhoff explicitly puts it out in the open that the differentiating spatial and housing characteristics of the apartheid city model from the 1950s are the outcome of the formal construction adapted from the modern planning design principles and theories (Haarhoff, 2011:185).

The tenets of the Modern Movement related to the apartheid city model that are mentioned by several authors, like Fatima Friedman and Arthur Barker (2017), are briefly condensed by William Curtis (1986). Referring to the Charter of Athens, he puts it to us that the document that ultimately came out of CIAM was destructive because of its universal application, which, in the apartheid cities, meant to create a specific building type for the townships. The quotation of Curtis below leaves no doubt about his understanding:

> Rigid functional zoning of city plans, with green belts between areas reserved for different functions and, a single type of urban housing expressed in the words of the charter as "*high, widely spaced apartment blocks wherever the necessity of housing high density populations exists*" (Curtis, 1986:122-123).

Based on this quote, the correspondence with the principles of the apartheid city model is clear. Bridging with it, we see Frescura's description above and the role of the industrial green belts and buffer zones giving way to segregation by separating people according to race. Deducing on the views of the mentioned

authors, it seems that the tenets of the Modern Movement were modified in South Africa to form the tenets of the apartheid city model.

3.2.1. Framing the modified tenets in the Apartheid city model

This chapter quotes a set of authors under the idea that they explain and show that what ultimately came to be the apartheid city model – shaping the territorial morphology of South Africa – bares its origin from the tenets and theories that were invented to organise space while bringing cooperation amongst communities, ending up being used to segregate races and, consequently, the urban morphology of cities in South Africa.

Setting the scene for the analysis of the dissemination of the principles of the apartheid city model, I reflect on Namibia's experience on the topic through the eyes of Fatima Friedman (2000) who points out some similarities between Namibia and South Africa. As a prior explanation to this, one needs to take into account that Namibia was under South African laws after Germany lost WWI; previously, since the mid-1880s on, Namibia was colonised by Germany (Baker, n.d.:15).

Writing on 'De-constructing Windhoek', Friedman (2000) alludes for a number of times to the fact that British and United States of America suburban ideals are how Namibia was developed. Reflecting strongly on the mono-functionality of the developments which allowed segregation of population groups to advance and be achieved in ideal urban forms, Friedman stresses out the influence of the British town and country planning act of 1932. She sees this piece of legislation emphasizing mono-functionality, which is evident in South African cities and towns if we take Friedman's study about Namibia into account (Friedman, 2000:1).

This connection between South Africa and Namibia is imperative because it allows critiquing South Africa by using a secondary source to justify that British and American ideals form part of the modified modern planning principles that gave rise to the apartheid city model. Lastly, I include the European ideals of urban planning as also being an influence and playing a role in that modification through the Transvaal group. According to Haarhoff (2011), and recalling what I

mentioned above, Rex Martienssen and the Transvaal group went on a study tour to Europe in the 1930s, where they learnt a lot in terms of town planning and urbanism and brought that applied knowledge to South Africa (Haarhoff, 2011:185). In addition, Cooke (2003), quoted by Barker (2015), said that what inspired the Transvaal group was its fascination with European culture, and thus they imported it to South Africa (Barker; 2015:71).

3.2.2. The classical urban models and the apartheid city model

The three classical models shown in Fig. 7, below, are presented in some detail so the interrelation, or its influence, in the apartheid city model, as stated by Gardner et al. (2019), becomes clear.

The concentric model was developed by Ernest Burgess in 1923 and it was based on the city of Chicago. It was built up under the concentric zoning principles being that the innermost circle (number 1 in Fig. 7) illustrates the downtown district (CBD), where businesses and commerce are placed. The next zoning circle (number 2) is the transitional zone where industries are located near markets and transportation terminals. Zone 3 is for independent tenements, zone 4 is for single-family housing, and zone 5 is the commuter zone with the suburbs (Gardner et al., 2019).

Under zones 3 and 4, a form of segregation is set by which governments implement policies to organise human settlement according to their socio-economic status, according to Gardner et al. The concentric model is the first model to describe the distribution of people according to social groups in cities. In the apartheid city model, developing on the canny resemblance of this model, the segregation referred to would be according to race.

The sectoral model was developed by an economist by the name of Homer Hoyt, in 1939. Hoyt based this model on land uses and put forward that functional zones are to originate around the centre of the city (CBD). According to him, the functional zones are characterised as the centre/CBD (number 1 in Fig. 7), next to which comes the transition zone (number 2) with light industry and wholesale. Zone 3 is composed of low-class residences, zone 4 of middle-class residences, and zone 5 of high-class residences. Hoyt considered that the city grew from the centre outward to the periphery, and, according to him, this pattern of land use

was conditioned by the arrangement of transportation routes, radiating out from the city centre and creating a sectoral system (McDonagh, 1997).

The multiple nuclei model was developed by Chauncy Harris and Edward Ullman in 1945 and was composed of nine sectors which are: the CBD in the centre (number 1 in Fig. 7), the wholesale sector and the light manufacturing industry (number 2), followed by low-class residences (number 3), medium-class residences (number 4), and high-class residences (number 5). In sequence, was placed the heavy manufacturing industry (number 6), the outlying business district (number 7), the residential suburbs (number 8), and lastly the industrial suburb (number 9) (McDonagh, 1997).

Following the description of the classical three models for organising human settlement, I refer to D. P. Cilliers (2010) and how he illustrates their modification to morph into the apartheid city model, as developed by Davies (1981). He builds up his ideas through a number of models of organising human settlement that was a derivative of the classical three models: Simons' modernized apartheid city model, Kearsley's modified Burgess model, and White's model of the 20th century, among others. According to him, the model of the apartheid city described by Davies had a striking parallelism to that of Hoyt's sectoral model, as referred to by Pacione (2005, *cit. in* Cilliers, 2010). As he sees it, this relates to the nature in which the apartheid city model is intended to grow: Hoyt's model favours outward growth toward the peripheries and so does the apartheid city, as described by Davies and according to Cilliers (2010:23).

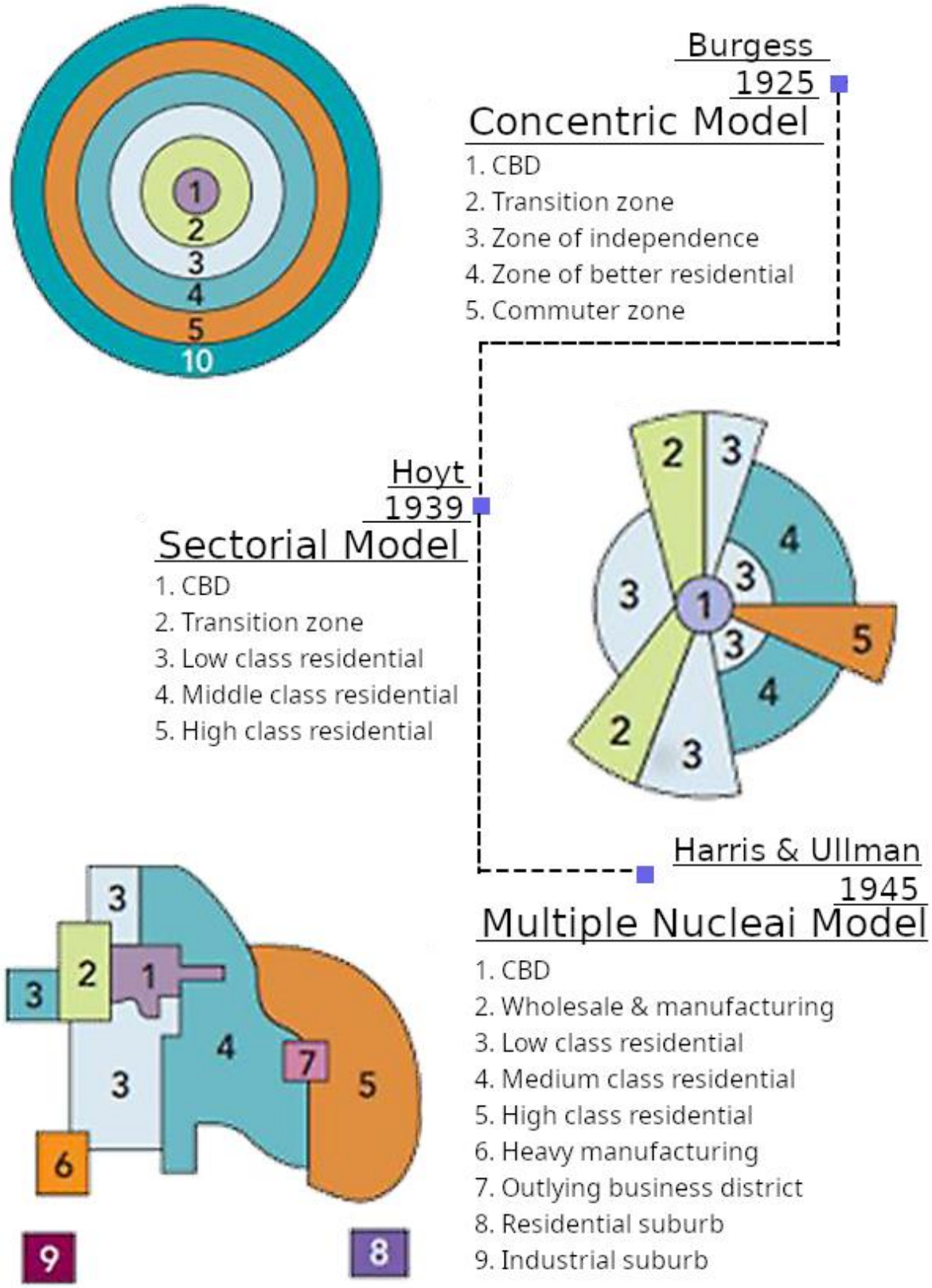

Figure 7 | The three classical urban models of planning of the 20th century
Source | Benna and Benna (2018:5)

3.3. Apartheid city model as a state's tool for racial segregation

Turok et al. (2021) state that in 1948 the National Party seized by general elections the power to govern the state affairs of the country. Immediately after its election, it initiated in spades the laws and regulations in the pursuit to inculcate racial segregation and white supremacy through the use of spatial instruments, being the case in point urban planning (Turok et al., 2021:74). Within this purpose, a few of the laws used as an instrument by the state and the governing party of the time to racially segregate the urban morphology of South Africa were: the Native Land Act of 1913, the Natives (Urban Areas) Act of 1923, the pernicious Group Areas Act of 1950, and the prevention of illegal Squatting Act of 1951 (Jurgens et al., 2013:256).

In previous sections of this work, I covered to a moderate extent two of the above instruments mentioned by Jurgens et al. (2013) that were used by the regime of the time to perpetuate racial segregation within the territorial urban morphology of South Africa – the Native Land act of 1913, and the Group Areas Act of 1950. To complement these laws (instruments of the state), Harrison et al. (2007) suggest that the Natives (Urban Area) Act of 1923 was an instrumental piece of legislation which also served as a preamble to the implementation of the 1950 Group Areas Act (Harrison, et al., 2007:21-24).

As alluded to by the authors, the former is of relevance to show how the apartheid regime aimed at utilising it as an instrument to perpetuate propaganda. According to the statutes of the Union of South Africa (1923), the Natives (Urban Areas) Act No. 21 of 1923 (page 140) states that:

> The Act was to provide for improved conditions of residence for natives in or near urban areas and the better administration of native affairs; for the registration and better control of contracts of service with natives in certain areas and the regulation of the ingress of natives into and their residence in such areas; for the exemption of coloured persons from the operation of pass laws; for the restriction and regulation of the possession and use of kaffir beer and other intoxicating liquor by natives in certain areas and for other incidental purposes.

A. J. Christopher (1983), in his reflection on the colonial origins of the apartheid city, seems to suggest that the aforementioned act was aimed to impose racial segregation by the establishment of separate residential locations for the Africans

(the Natives) (Christopher, 1983:146). Corroborating this, Harrison et al. (2007) submits that the 1923 act was directly concerted with racial segregation (Harrison et al., 2007:24-26). The act appears to be more sympathetic to the coloureds and subjugating to the native Africans in terms of spatial settlement invoking racial hierarchy (Union of South Africa, 1923:140).

Adding to the above, Kloppers and Pienaar (2014) refer to two other pieces of legislation related to land segregation during the years of entrenching the ideology of systematic spatial segregation into law: the Native Trust and Land Act No.18 of 1936, and the 1966 Group Areas Act No.36 (Kloppers and Pienaar, 2014:686). According to the authors, this act displaced and stripped the Native Africans from individual land ownership and introduced tenure of land ownership by setting up a trust (Kloppers and Pienaar, 2014:683-684). As to the latter, Kloppers and Pienaar considered it the coup de grace, a complement to the Group Areas Act of 1950 in that the Group Areas Act No.36 of 1966 consolidated racial segregation by establishing three groups according to race: Bantu, Coloured and White groups (Kloppers and Pienaar, 2014:686).

Promulgated in association with the Native Trust and Land Act of No. 18 of 1936, and initiated by Jan Christian Smuts (a military leader and once prime minister of the Union of South Africa), it was primarily designed to racially segregate the Indian Community of the Union of South Africa (Harrison et al., 2007:26). Adding to the above, Mabin and Smith (1997, *cit. in* Haarhoff, 2010) point out that Smuts, in charge of the South African regime in the year 1944, inaugurated the Social and Economic Planning Council (SEPC) as a government organ to advise his own government on matters related to urbanization, planning, and racial segregation (Haarhoff, 2010:187-188).

Haarhoff states that SEPC had a clear mandate to separate areas of residences according to race as a standardized procedure in the spatial context of urban planning in the Union of South Africa. SEPC proclaimed the segregation of residential areas based on race to be a national policy (Haarhoff, 2010:188). Harrison et al. (2007) views the background of urban planning in South Africa during this period in time (the apartheid era) within a dual nature: one being the British town planning system that was transferred into the landscape of South

Africa, and the other being the inherent rise to regulate and control urbanization for the native Africans (Harrison et al., 2007:22).

3.3.1. Apartheid city model as a tool for racial land dispossession

Already before the apartheid regime (1948-1994), the government of Louis Botha – the prime minister of the Union of South Africa between 1907-1919 – was passing laws, statutes, policies and acts aimed at racial restriction pertaining to land in South Africa. Through those, the government was systematically producing legal tools or instruments (under determined interests) to structure and entrench racial segregation through the spatial organisation, such as the apartheid city model and correlated techniques for urbanisation.

Regarding this matter, Stanley (2019) holds the 1913 Native Land Act accountable for the genesis of the exoduses that followed. He sees it as an apparatus for dispossessing the native Africans from ownership of land that resulted in negative effects that eventually appeared in the coming of time (Stanley, 2019:2). In addition to this, Jurgens et al., (2013) echo how the aforementioned statutes of the Union of South Africa emerged to be responsible for the removal of 3.5 million of people '*predominantly the native Africans*' under the implementation of the ideals of the National Party (ruling party during the apartheid regime era) which aimed to racially segregate the geography of the country (Jurgens et al., 2013:256). Adding some figures, Kloppers and Pienaar (2014) say the Native Trust and Land Act No. 18 of 1936 relegated 13% of the land for the native Africans by adding 5% to the native Reserves – 'Bantustans'. This 13% of the land was home to 80% of the population of the Union of South Africa, predominantly native Africans (Cfr. Fig. 8) (Kloppers and Pienaar, 2014:684).

Excuses for the forced exodus health hazards posed by the slum conditions came forth, but Turok et al. (2021) state that health condition was only a pretext for the removal of the native Africans out of urban cores of the city centres (Turok et al., 2021:73). This seems to fit a phenomenon that Swanson (1976, *cit. in* Harrison et al., 2007) named '*sanitation syndrome*', referring to a syndrome commenced because of the bubonic plague that wreaked havoc between the years of 1901 to 1904 (Harrison et al., 2007:24).

The bubonic plague originated from the port cities and then entered the inland of the Union of South Africa, giving way to the movement of native Africans into the townships in the urban peripheries of places like Ndabeni in Cape Town, New Brighton in Port Elizabeth, and Klipspruit in Johannesburg (Turok et al., 2021:73). Following this movement of the native Africans to the peripheries, the influenza pandemic in 1918 instigated another exodus in the city of Johannesburg, which gave way to the creation of the Western Areas Native Township (Maylam and Beavon, 2004, *cit. in* Harrison et al. 2007:24).

Referring to Durban, Maylam (1995) records that urban residential segregation based on race was alive and well in the year 1871, when, according to Swanson (1983, *cit. in* Maylam, 1995), the first efforts towards urban racial segregation were attempted by creating policies that relegated the Indian population of South Africa to a separate residential location. Maylam further adds on to say that before 1900 urban racial segregation had been implemented in South Africa, in Durban, where this was done particularly for the control and restriction of the native African working class (Maylam, 1995:23-24).

Complementing this, Horrel (1963) expresses how, as a consequence of the Group Areas Act of 1950, the native Africans, Indians and Coloureds of Durban that lived in the city centre were relocated within the general ideology of urban residential segregation: 10.000 Indians and coloureds and 80.000 native Africans, as well as 2.000 White people, were dispossessed of their homes (Fig. 9) (Horrell, 1963:11). During this time, in Durban centre, the Indians retained their trading rights while the whole Bay area (inland) was reserved for the White population; to the north and the south were first placed the Coloured population and then, at the peripheries, the native Africans population. This turns clear the spatial racial segregation of Durban in South Africa (Horrell, 1963:11).

Likewise, in other cities relocation took place. Horrell informs that in Johannesburg 27 000 Asian population were moved from their place of residence (Horrell, 1963:9). Furthermore, 15 000 native African descendants and Asian descendants (Indians and Chinese) were displaced on account of the 1913 Native Land Act. Corroborating the author above, the United Nations Centre against Apartheid as well as Higgs and Barry (1971) state that people were

moved like '*pawns on a chess board*' to preserve the White minority (Higgs and Barry, 1971:4).

3.4. Apartheid city model as a tool to producing a racially segregated national landscape

3.4.1. Spatial Segregation between 1910-1923

Alan Mabin's (1992) extensive piece of writing illustrates that after the Boer war (1899-1902) in the Union of South Africa (where the Boers lost the war) their republics – Orange Free State and Transvaal – were annexed by the British (Beinart and Delius, 2014:669). In 1910, the four colonies – Transvaal colony, Cape colony, Natal colony and Orange Free State colony – were consolidated and some division of land took place between the native Africans and other races. Within it, small areas were maintained aside as '*reserves*' for the native Africans which they inhabited as squatters or tenants (Fig. 5) (Mabin, 1992:5; Beinart and Delius, 2014).

The result of the Native Land Act of 1913 was the spatial segregation of the landscape of South Africa according to race, as mentioned above. Figure 5, taken from Vestbro and Emer (1999), illustrates these reserves in black colour – the '*Black spots*', which the authors say were officially called 'Kaffir locations' and 'Coolie towns' (Vestbro and Emer, 1999:1-2). Taking from the authors, this figure also shows how 75% of the population of South Africa was confined in 7.5% of the land of Union South Africa. The green colour represents the area reserved for the White group of the population, thus the majority of it, which is agricultural land (the most fertile land) and the urban cores under the control of the White group (Vestbro and Emer, 1999:1-2).

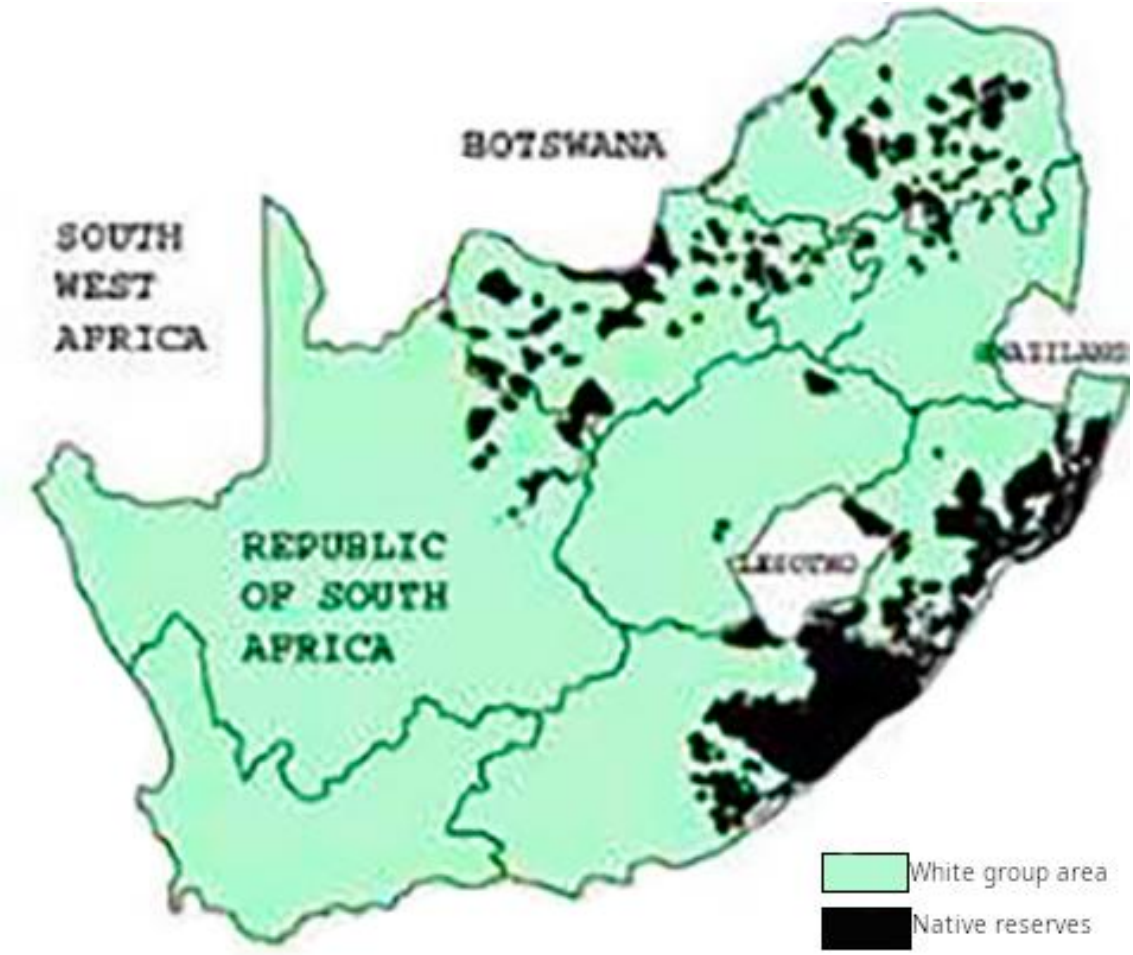

Figure 8 | Spatial urban segregation between 1913-1936: the 'reserves' for the native Africans
Source | Vestbro and Emer (1999:1)

3.4.2. Spatial Segregation between 1948 to 1994

After gaining power in 1948, the affinity of the apartheid National Party to the ideology of urban racial segregation created as its priority the 'Homelands', or 'Bantustans', for the native Africans as a way to enforce the notorious pass laws and subjugation of the native Africans (Smith, 1992:2)

According to David Smith (1992), and the official census of 1989, the population of the Republic of South Africa was by then of about 30.2 million people. This number excluded 6.5 million South Africans, which were relegated to the Homelands under a status of independent sovereignty, where the Republic of South Africa had no authority. These independent states are Ciskei, Transkei, Bophuthatswana, and Venda, illustrated in Fig. 9 (Smith, 1992:4).

The remaining territories Gazankulu, KwaZulu Natal, Lebowa, QwaQwa and Kwa Ndebele were left under the control of the Republic of South Africa and were composed predominantly of native Africans (Smith, 1992:4). According to Davies (1992), by 1989, the Population of the native Africans in these reserves was 21.1 million, thus 69.9% of the total population of the Republic of South Africa by that time. 3.2 million Coloured population was in those homelands, which was 10.5% of the total population of the Republic of South Africa during this period (Smith, 1992:4). Fig 9 shows the spatialization of these figures.

During this period in the Republic of South Africa out of 30.2 million of the total population 5 million were British, Dutch, and Europeans descendants with a percentage of 16.5%; if including the lower-class White group that was relegated in the homelands this makes it up to 16.6%. The Asian population made of Chinese and Indians comprised 940 000 people this being 3.1% of the population of this period (Smith, 1992:4).

Smith further elaborates how, within this structure of systematic racial urban segregation, ethnicity was also a vital element to segregate the urban spatial organisation of the Republic of South Africa. He points out that 5% of the White group population was comprised of 50% Dutch (Afrikaner) and he also refers to the Malay (a mixture of European and native Africans) making 200 000 of the population (Smith, 1992: 3-5).

Under the homelands, the population was spatially distributed and divided according to ethnicity. Still according to Smith, 6.4 million of the native African population was Zulu, 6.2 million was Xhosa, and the Asian population was composed of 70% of Indians, 20% of Hindus and Muslims, and the remaining 10% were Chinese (Smith, 1992:4).

As to the spatialization of this data (Fig. 9), and according to the official statistics of the Republic of South Africa by 1989, Smith states that about 16 million native Africans were settled in 10 homelands and the remaining 11.5 million of the population was allocated to the remaining space (Smith, 1992:5).

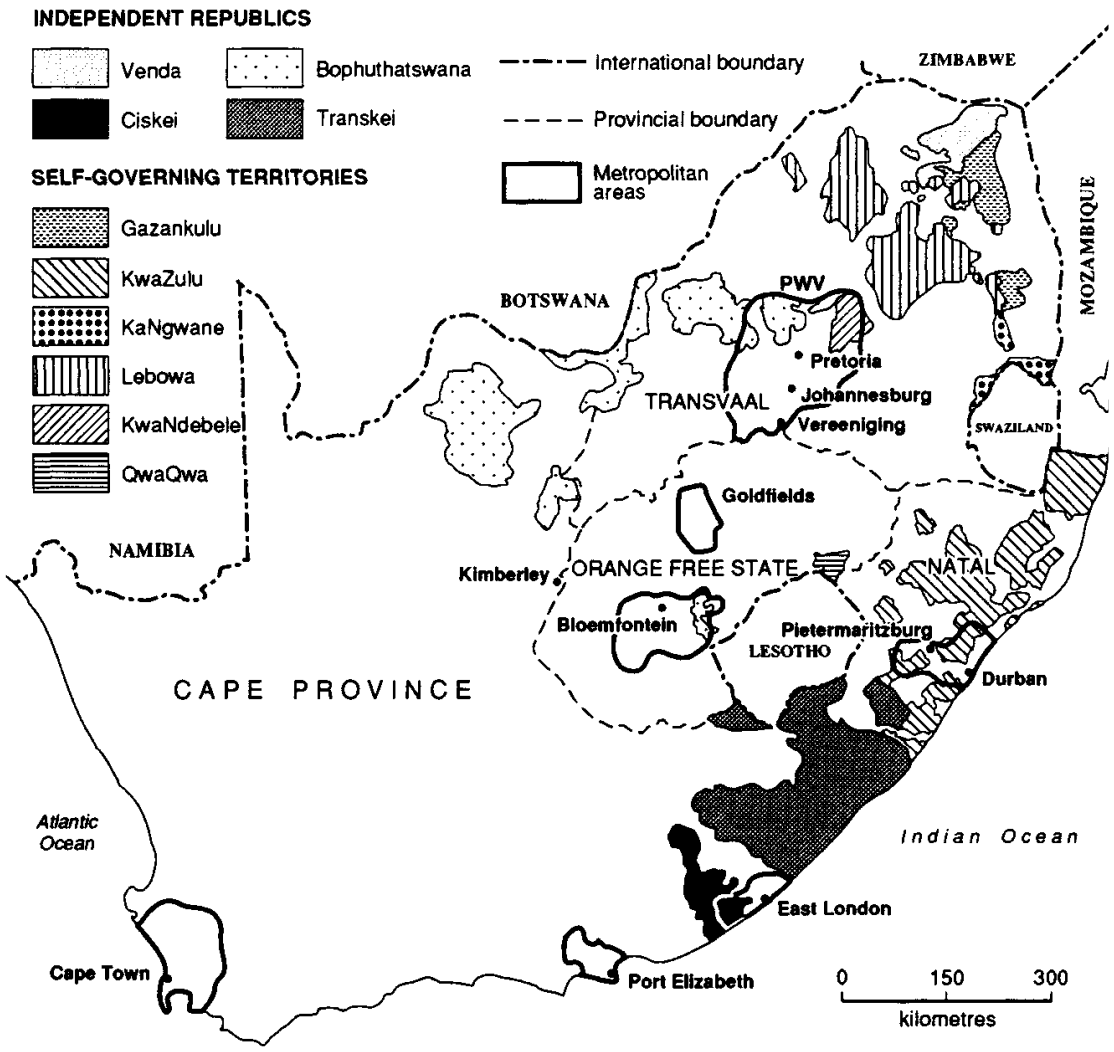

Figure 9 | Spatial urban segregation between 1936-1989: the 'Bantustans, Homelands, Native reserves' under the Native Land Act
Source | Image adopted from Smith (1992:4)

3.4.3. 1910 to 1994 | Economic, social and socio-economic structure of the apartheid city model

According to Davies (1981), the socio-economic basis of urban South Africa during the apartheid regime was bounded by a national political economy that established the *'institutionalised dominance-dependency'* association between races and class-like systems of social engineering. The author remarks that race-forming and class-forming procedures were not consistent with each other and thus had never been closely related but intrinsically underlying in the patterns of spatial and intra-urban arrangement (Fig. 11). This correlation between race and class finds its way back in colonial times, as I discussed in section 2.1.1. (Davies, 1981:59).

As previously said, the prime generator of the South African economy came forth during the industrial age when mines were discovered in the 1800s in Kimberly, and subsequently in Johannesburg. By then, there was a gold and diamond rush fuelled by external investments, which was monopolised by the White group, i.e., De Beers, with the native Africans serving as cheap labour for the capitalists (Davies, 1981). The outcome of this was the establishment of human resettlement around the mines, with the native Africans being located close to these economic nodes.

The migrant labour system, according to Hindson (2011), was first South Africa's political economic pillar through which the mass wealth of the White group was obtained from the exploitation of the native Africans. As alluded to by the author, and mentioned before, by that rule of the influx control policy the native Africans were allowed in the city only on the basis of serving the needs of the White group, which made the native Africans temporary residents of the city (Hindson, 2011: 83).

Referring to Cape Town, Turok et al. (2021) embodies this migrant system within that reality telling it was required for the native Africans to travel 30-35km to get to the CBD to access a livelihood (Turok et al., 2021:74, Hindson, 2011:83). Similarly, Jurgens et al. (2013) state that the native Africans had to travel about 26 km from Soshanguve Mabopane and Garankuwa to Pretoria by public transport to be able to access the livelihood conditions and work. According to these authors, this geographical marginalisation resulted in the native Africans not being part of the mainstream economy.

Adding to this, Smith (1992) remarks that the economic equality and efficiency resulting from the rigid constraints on urbanisation were vividly inconsistent in the land of the Republic of South Africa. Mabin (1992) reflects that in the 1970s, because of the stagnated labour demand for the native Africans and because they had no alternative means of livelihood through the rural economy, they became dependent on the urban economy (Mabin, 1992:18).

Another element that contributed to the socio-economic inequalities in the landscape of South Africa was the previously referred dispossession and exoduses that took place by stripping the native Africans of their elementary means of production (the land which contributes to the socio-economics of human settlement), this having implications for the way native Africans found themselves relegated to the bottom of the labour market (Fig. 10) (Davies, 1981:60).

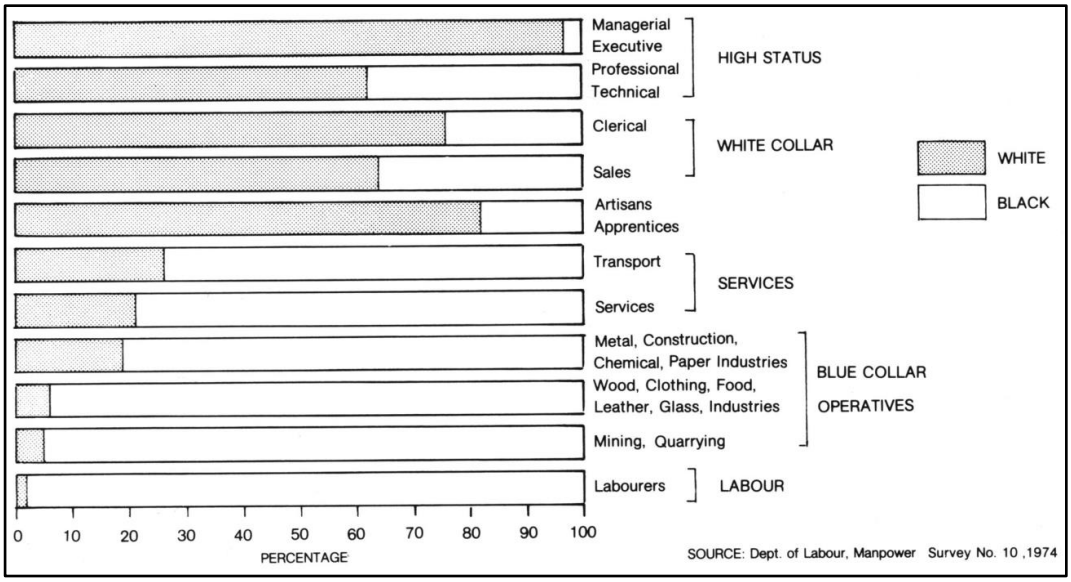

Figure 10 | Employment hierarchy in the Republic of South Africa in 1974
Source | Davies (1981:61)

Indeed, from the data collected by Davies (1981) in Fig. 10, it can be assumed that the political power was in the hands of the white group, which, under the process of colonialism, had the ability to enact laws and policies that were regulatory for social and economic relations, and thus built inequality in South Africa. (Davies, 1981:60).

Table 1 | South African urban trends of 1911-1975 by sectors of economic activity

Year	GDP (R000's)	Agri-culture	Percentage Mining	Manufc-ting, Elec-tricity, Gas, Water	Trans-port Commerce Finance	Other Services
1911	229,2	20,8	28,0	5,4	25,1	20,7
1936	759,6	14,1	18,7	15,6	28,0	23,6
1960	4 965,0	12,1	13,8	26,1	35,2	12,8
1975	24 285,0	7,9	13,1	31,1	34,5	13,4

Sources: Fair and Browett, 1979; Department of Statistics

Source | Davies (1981:61)

Davies' illustration of the GDP trends of South Africa between the years 1911-1975 (Table 1) makes clear the transition of the economy, which took a drastic paradigm shift from mining and agriculture to manufacturing and industry. Even when initially the economy of South Africa was dependent upon international capital with its prime generator being mining, the country was able to achieve national capital centred around industrialisation. Still, taking into account the trends shown in Table 1, the growing importance of industrialisation and urbanisation became evident as the modernising force raised their percentual productivity capacity within the South African economy (Davies, 1981:61).

With the native Africans being set under socio-economic limitations by the regime of this period (1911-1975), divisive coercive social tendencies escalated due to quickly developing urbanisation and population growth within policies that prohibited interracial and interclass economic and social proximity (Davies, 1981:61). These limitations to the native Africans took different forms because the White industrial legislation and convention advocated for the White group through protection from black labour rivalry (Fig. 10). One of those limitations was the income distinction, setting a high income for the White group and a relatively low income for the native Africans (Table 2) (Davies, 1981:61-62). Fig. 10 shows limitations in the labour market and disenfranchisement of employability for native Africans (Davies, 1981).

Table 2 | Socio-economic indicator of 1978

(1) Personal Income per Head (R)		(2) Income Gaps: Personal Income per Head		(3) Percentage share of personal income received by top 5 %, 10 %, 20 % and bottom 80 % of the population				
					Top 5	Top 10	Top 20	Bottom
White	1 234	White/Col.	6.63/1	Total	40	57	74	26
Coloured	186	White/As.	5.46/1	Whites		97	95	5
Asian	226	White/Afr.	14.13/1					
African	87							
All races:	330							

(4) Percentage of economically active population with less than 7 years and more than 12 years of education

	Less than 7 years		12 years or more	
	Male	Female	Male	Female
White	7	3	33	32
Coloured	72	72	2	2
Asian	49	64	6	7
African	92	86	1	1
All Groups	73	65	7	8

Source McGrath, 1978

Source | Table adopted from Davies (1981:63)

4. Apartheid city model as a tool to producing a racially segregated urban morphology

According to Murray et al. (2007), through the exodus of the population, institutional tools such as the law – the 1950 G.A.A and influx control policies - allow control over the cartography of the country. They remark that 'White spaces' (constituted of British, Dutch, and European descendants), and 'Black spaces' (constituted of the native Africans of the Republic of South Africa), were maintained divided by a stratagem of urban planning: empty tracks of land – buffer zones – used to separate race groups (Fig. 11) (Murray et al., 2007: 6).

The authors also point out the topic of the distinct education between the White group and the native Africans, with the '*Bantu*' education policy (education for the native Africans) being inferior to the one of the former. They further say that in places like Sophiatown and district six and in some rural places, schools were destroyed only to be replaced by the creation of the 'township' (Murray et al., 2007), which were dormitory places/spaces (places of non-permanence) situated on the edges of urban areas, in the peripheries (Fig. 11) (Murray et al., 2007:6). As to the spaces that were allocated to the White group, still according to the authors, they were composed of city centres, farms, beaches, and suburbs (Murray et al., 2007:6).

This seems to be in tune with Turok et al. (2021), as they indicate that racial hierarchy was embedded in the landscape of the Republic of South Africa by the allocation of large spaces to the White group population, the sites in between to the Coloureds and the Malay, and further away the black townships (Fig. 11) (Turok et al., 2021:74). On his turn, Maylam (1990) remarks that natural and manmade barriers were used to racially and spatially segregate the urban space of the Republic of South Africa, also stating that the townships were designed in such a way that in any instance of an up-rest or revolution they could be isolated and conquered in the open streets (Fig. 11) (Maylam, 1990:70).

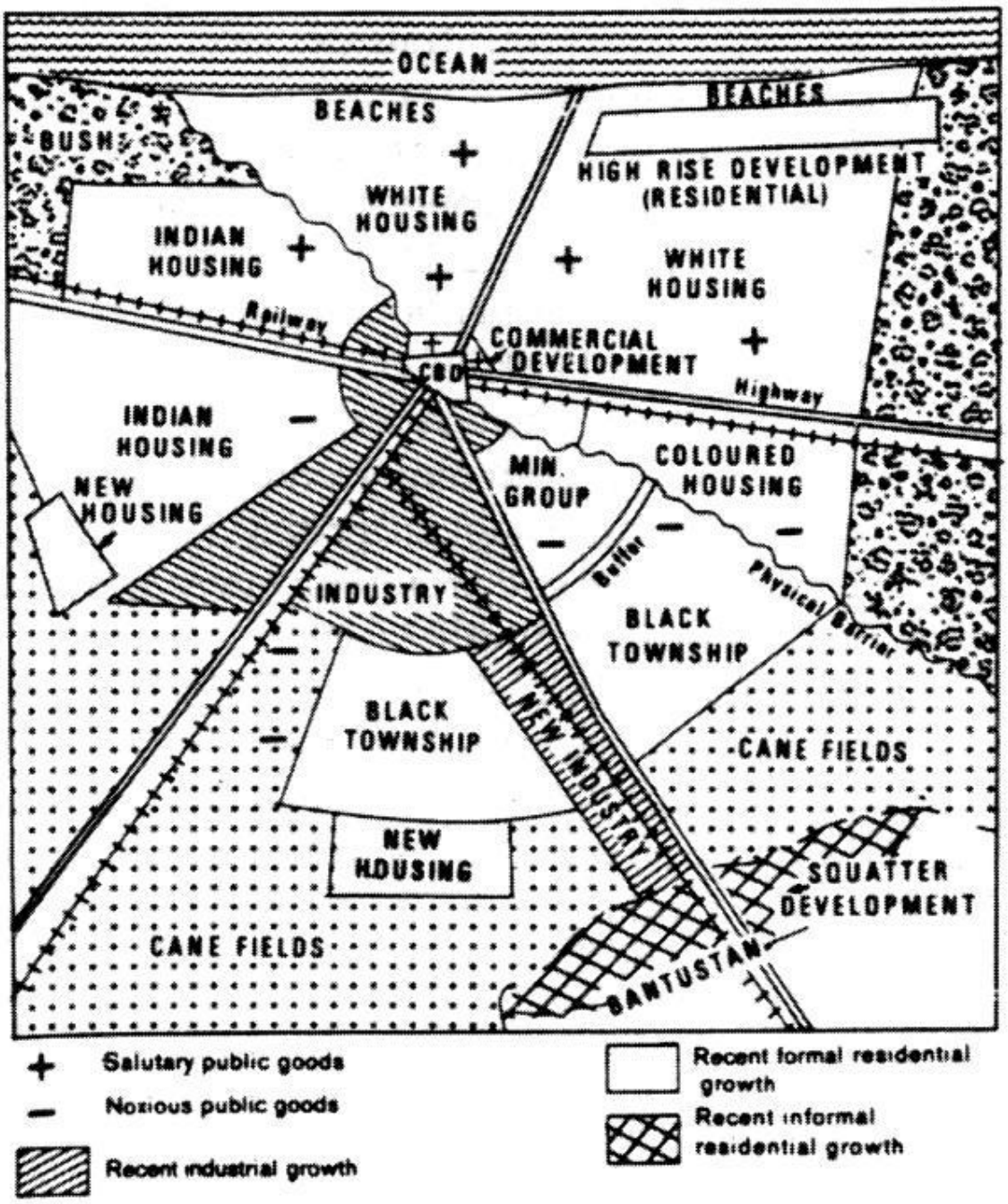

Figure 11 | Racial urban spatial segregation and the 'Bantu Townships' created by the Group Areas Act of 1950
Source | Vestbro and Emer (1999:3)

As to the buffer zones used for racial zoning, they varied from green belts (natural features) to industrial areas, in both cases designed to warrant maximum control of the population (Fig. 11) (Harrison et al., 2007:27). According to Haarhoff (2011), this logic to racially and spatially segregate the urban environment of the Republic of South Africa, by the council responsible for urban planning, was referenced in the New Town movement in America and Britain and its aim for creating coherent communities separated by green belts (Haarhoff, 2011:187-184)

Adding to the above, Turok et al. (2021) mention how special reserves of nature used for the restriction of the house-buildings in Cape Town covered about 40% of the municipal authority area. They further state that also the rails and road networks that cross the city acted as barriers to restrict access and enforce the influx control policies aimed at racially restricting the access of certain groups into certain places and racially segregating neighbourhoods. (Turok et al., 2021:73).

Following the above, a reflection on the three biggest metropolitan cities in South Africa – Cape Town, Johannesburg and Namibia – where most apartheid ideologies were implemented, aims at highlighting some of the aspects previously referred to within specific landscapes. Its purpose is not to be extensive, but rather a selective one so that later it allows me to discuss the tenets of the apartheid city model in a practical manner within my case study.

4.1. Cape Town

As mentioned before, the apartheid ideology of racial segregation was implemented all over South Africa. Gillian P. Cook (1992), writing about Cape Town, illustrates the development of Khayelitsha, a settlement area for black people who were removed from the core centre of the urban Cape Town. Fig. 12 shows Khayelitsha situated in the periphery, away from the CBD, to the East, in between two major roads and former agricultural land. According to the author, the residents who were informally inhabiting the area of Crossroads (smaller map inserted in Fig. 13), whom mostly were native Africans, were ordered to remain settling there under the condition that they had no land rights. Following this informal setting, four sites were selected to formally house the native African (Fig. 13 shows two of them, sites B and C), which were comprising of a size of 3.220

hectares cleared and built on. Each housing village would accommodate 30.000 people in 25 by 32 square meters dwelling on a 160 square meter yard/plot. Included in these areas was space for high income private housing as well as land for educational and social facilities (Cook, 1992:126).

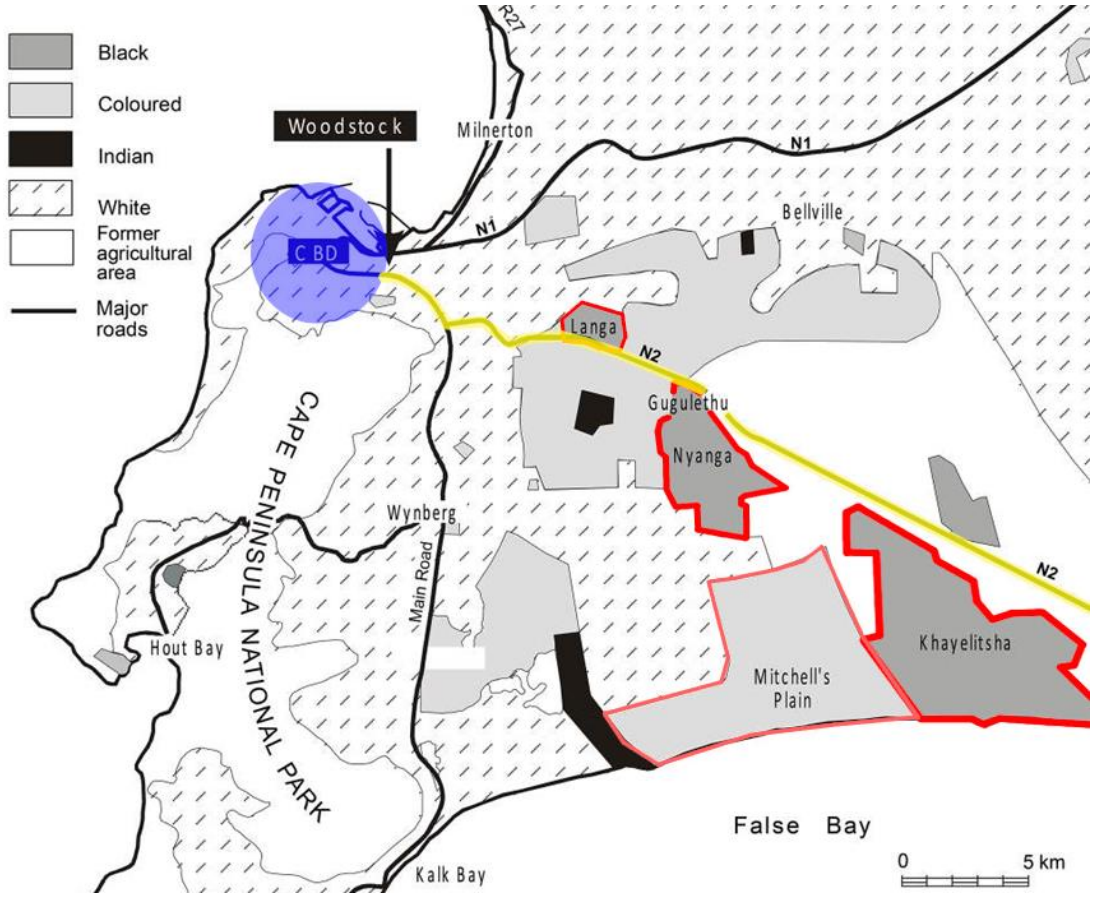

Figure 12 | Group Areas Act in Cape Town during the Apartheid era (strong red line: peripheries 'native Africans areas'; blue: CBD (centre); red line: high income area; yellow line: 25<d<30 km)
Source| Adapted from Holzschuch et al. (2018:13)

A railway line connecting Khayelitsha to Cape Town CBD provided for migrant workers' movement as policies of the apartheid regime did not allow for the native Africans to occupy the urban areas, except when fulfilling the needs of the White Group as their employers; they would have to leave after providing the labour services. Cook also tells that temporary housing was prepared for the people who were moved from the urban centre of Cape Town and were placed adjacent to Langa (in the centre of Fig. 12, by the N2; and Town numbered 1 in Fig. 13). To this respect, the author also points out the greatest impact of this type of settlement by virtue of the degree of density of housing and people. Indeed, he adds that this settlement resulted in two types of informal residential areas, one

which was temporary and shown in Fig. 12 (Langa township) and another which is permanent and refer to the sites B and C shown in Fig. 13.

By 1985 the efforts of moving all native Africans out of the urban centre of Cape Town were abolished and thus site C (Fig. 13) was established; there, a technikon, a hospital and a stadium were built (Cook, 1992:126). Adding to this topic, Turok et al. (2021) helps us understand the process of social inequalities taking place through the distribution of infrastructure and equipment when explaining about two townships established in the 1970s – Khayelitsha, previously mentioned, and Mitchells Plain. These townships were occupied by the coloured people of low- and middle-income families, and situated away from the CBD by 25 to 30km. One of them – Mitchells Plain – was designed to enforce urban spatial segregation by being delineated by neighbourhood precincts with wide arterial roads and basic public facilities of its own. The authors also point out the racially exclusive inequality in residential segments (considering both plot and yard), and how education, recreational and health facilities were located to reduce interracial proximity (Turok et al., 2021:74).

According to them, separate local authorities were created to administer the affairs of the people in this township, which resulted in racially separate schools, public transport and healthcare, a procedure that was standard in South Africa taking into account other authors also referring to it. The impact of this separation resulted in the inequality of resources and services (Turok et al., 2021). By quoting Mabin (2005), Turok et al. explain how education for the White group was deemed far superior to that of the native Africans in all spheres, as the former had smaller classes and was provided with better teachers (Turok et al., 2021:74). Adding to the topic, Murray et al. (2007) asserts that facilities such as post offices, recruitment bureaus, hostels, park benches, courts and police stations worked as sites of surveillance in the Republic of South Africa under the apartheid government.

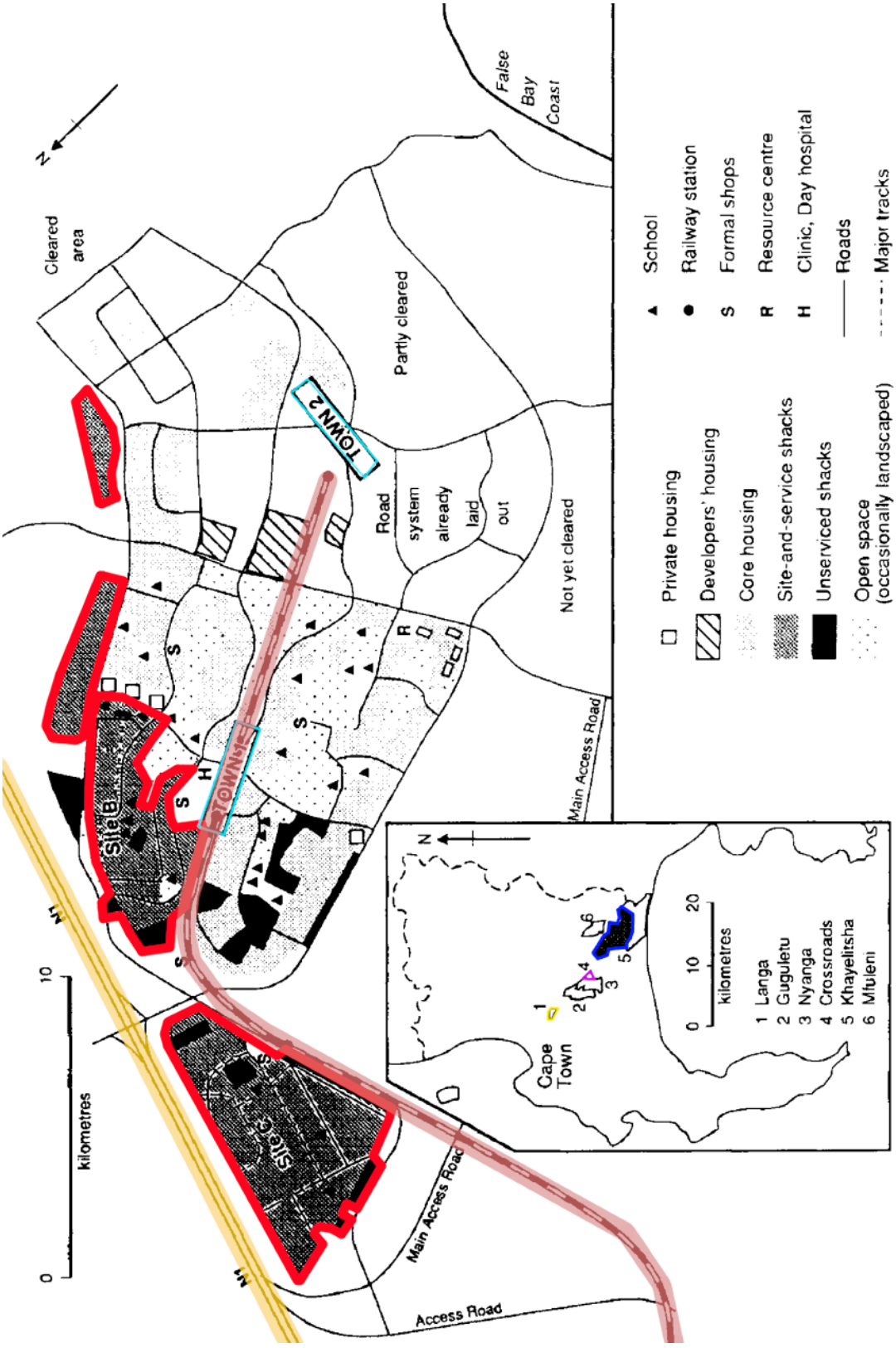

Figure 13 | Khayelitsha development up to1990 **(red line: Site A, B, C, D; light yellow: N1 major road [should be N2 according to Google Maps]; light brown: railway line; light blue square: train stations with commercials), (Enclosed map - yellow: Langa informal settlement; pink: Crossroads informal area; blue: Khayelitsha informal settlement)**
Source| Adapted from Cook (1992:127)

Hindson (2011) remarks that before the 1980s the policies established for the native Africans determined two socio-spatial types of residential for the working class: a permanent residence in the township, and a non-permanent residence in hostels (dormitory places for male workers only) within the township and close to the town. The permanent residence was allocated into 'matchbox' township houses, as shown also in Fig. 14. These are the settlements that Floyd (1951:22) refers to as 'industrial townships'. From these emerged new forms of socio-spatial strata in terms of access to urban resources between residential communities (Hindson, 2011:87).

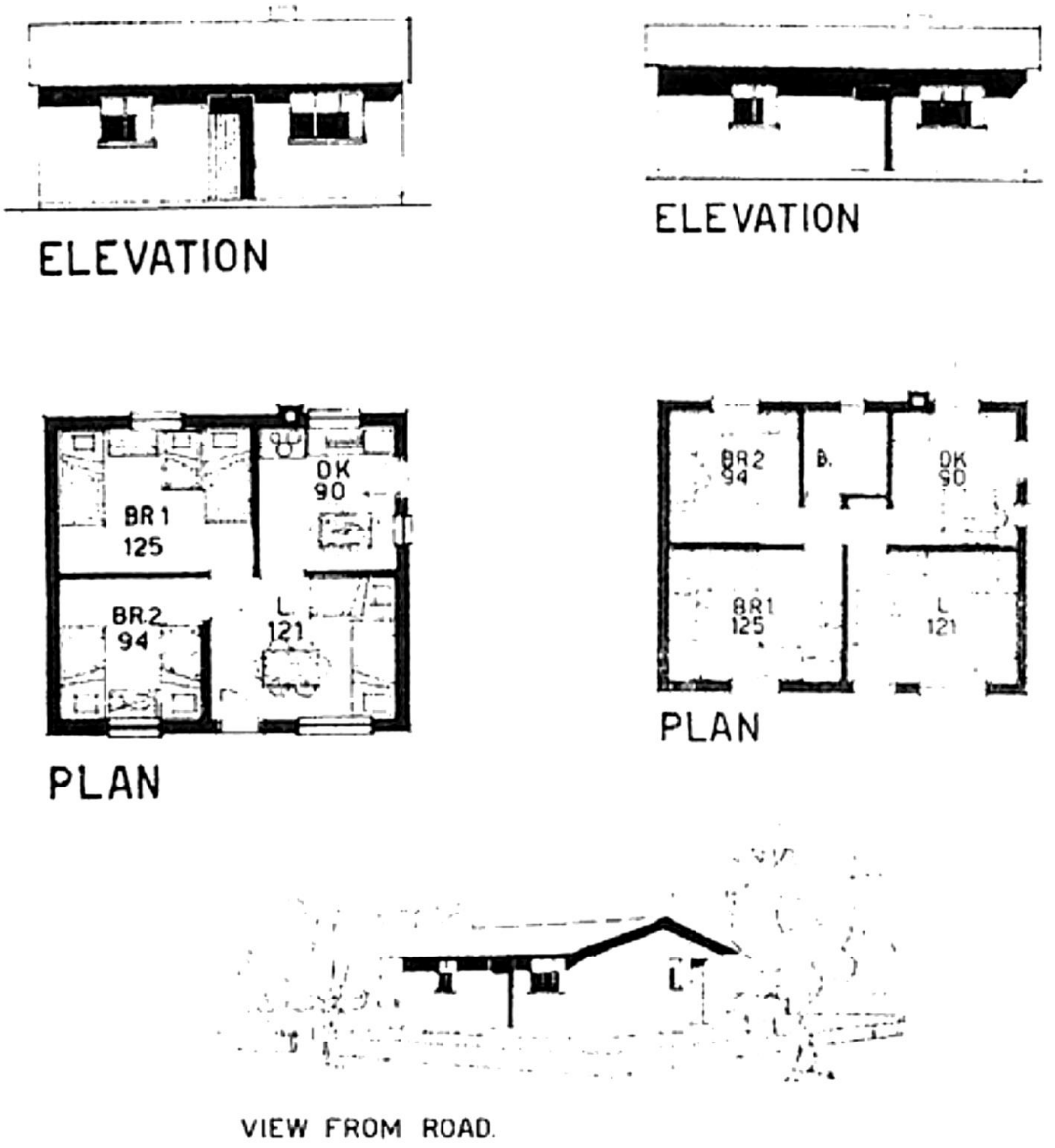

Figure 14| Government subsidised housing typologies – the *matchboxes* (NE 51/6 and NE 51/9, respectively)
Source | Calderwood (1955:29-31, *cit. in* Hickle, 2015:151)

4.2. Johannesburg

Christopher (1999) said the differences between races in Johannesburg during the apartheid era were delineated by physical and legal constraints placed upon the development of the Soweto townships. As Table 3 shows, most of the land in Johannesburg was allocated to the minority White group and way less of the land was allocated to the majority group which were the native Africans, this resulting in compacted areas with a high population density (Christopher, 1999:301).

Table 3 | Johannesburg group areas (1991)

Population group	Area (ha)	Population (000s)	Persons per proclaimed ha
African	7 719	988	128
Asian	1 924	55	28
Coloured	2 354	126	54
White	24 489	381	16

Source : Johannesburg Municipality, and 1991 census statistics.

Source | Christopher (1999:302)

Fig. 15 maps those numbers showing how racial zoning was implemented during the apartheid era in Johannesburg following the tenets of the apartheid city model where the native Africans, the Asians, and the Coloured were situated in the peripheries far away from both the centre and the economic activities. This was the result of the exodus that occurred all over South Africa during high apartheid where almost 1.7 million people were dispossessed of their land.

Referring to 1991, Christopher stated that 8.6% of the urban population lived beyond racial demarcated lines, the majority of which were the native Africans who were situated in informal settlements or living in the backyard of their White group employer (Christopher, 1999:302).

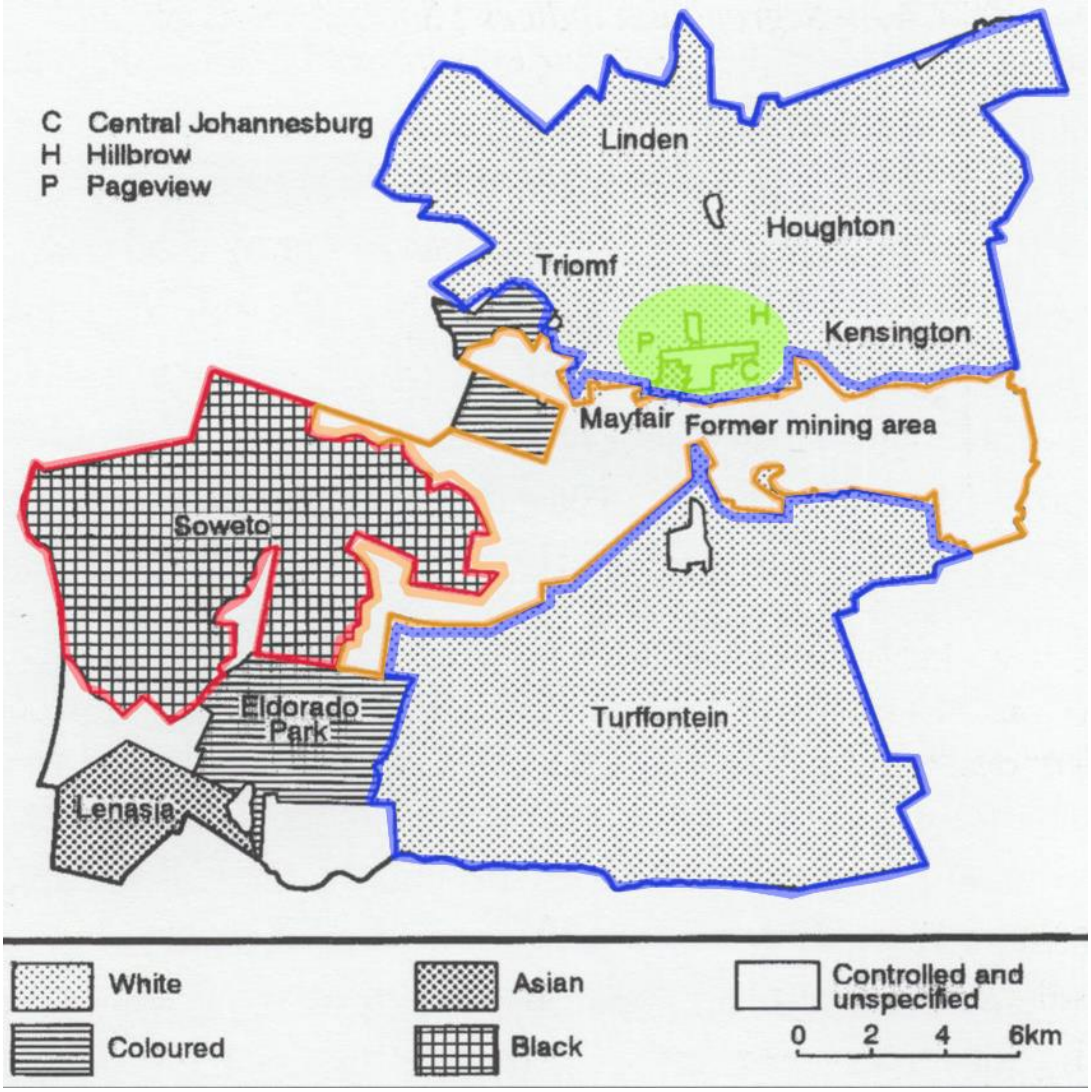

Figure 15 | Johannesburg racial zoning of the population (1991) **[(red line: Area in peripheries (population 988.000 inhabitants & area 7.719km2); light orange: buffer zone; light green: CBD (city centre); blue line: area in centre: population 381.000 inhabitants & area 24.489 km2)]**
Source | Adapted from Christopher (1999:302)

4.3. Namibia Windhoek

One element that worked as a race segregator within the apartheid ideology in this area was the landscape silhouette, although the settlement's original division dates back to earlier times. Indeed, Friedman presents it as a feature of the colonial planning organizing Windhoek, Klein Windhoek and Katutura (Fig. 16). She shows how Windhoek, which is dominated by the White group, is situated at the top of the hill and to the East for the houses' good sunlight orientation, and Klein Windhoek and Katutura are located at the bottom of the hill at a lower, where conditions were unfavourable for a comfortable living within the natural element

– All the water run-off from the hill ends up in the houses at the bottom of the hill, thus creating bad living conditions when it rains (Friedman, 2000:6).

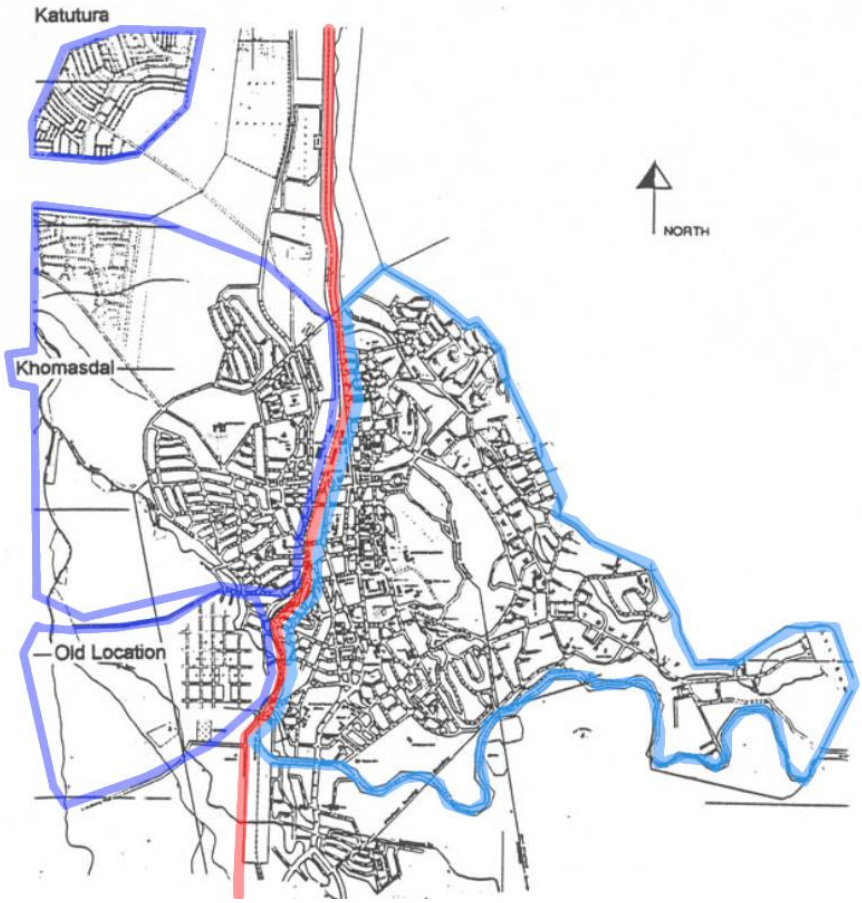

Figure 16 | Namibia, 1892 **(blue line: lower area; light blue: higher area; red line: Western bypass)**
Source| Adapted from Friedman (2000:4)

During the apartheid era, Namibia was an example of how road infrastructure and housing would be used as tools to perpetuate the apartheid ideology. Friedman (2000) describes the spatial organization of Windhoek, referring to the white group occupying the East and South parts of the city, and the native Africans and the Coloured population situated in its north-western parts. In between them, the Western bypass is used as a barrier and a buffer zone to establish racial segregation (Fig. 17).

Figure 17 | Western Bypass and Buffer zone: division between the edges of the city (on the left-hand side) and Khomasdal (on the right-hand side)
Source| Friedman (2000:16)

Still according to Friedman, the division by the Western bypass is upheld by the major development trend which is the movement of the poor, native African rural migrants into informal areas on the fringes of Katutura. The houses that were standardised as a 'Matchbox' (Fig. 18) were set in the areas where the native African population was located, each of them differently painted externally. These houses were organised in a cellular fragmented manner, as Katutura and Khomasdal are separated by the buffer, the western bypass and the industrial zone (Friedman, 2000:6).

Figure 18 | Katutura housing – *matchboxes* – in 1970
Source| Friedman (2000:4)

Part 2: VREDE CASE-STUDY

5. Vrede as an Apartheid City?

5.1. Introduction

5.2. Brief historical overview

5.3. Morphology and structure of the apartheid city model in Vrede

5.4. The tenets of the apartheid city model in Vrede

5.5. Socio-economic characterisation of Vrede

5. Vrede as an Apartheid City?

In this part of the investigation, I will analyse Vrede's settlement for the purpose of showing that Vrede town and Thembalihle township are a product of the Apartheid city model. In this sense, I will fundamentally study its physical characteristics, which I will relate to the tenets of the apartheid city model as defined by Davies (1981) and Frescura (2000), and discussed in the theoretical part previously developed.

I will begin by mentioning some general aspects of Vrede's location, followed by a brief historical overview, a general characterization of its morphology, and an in-depth discussion of the main topic. This section will conclude with a summary of a set of socio-economic data resulting from the 2011 census, in which I intend to support some of the aspects discussed in the previous chapter.

5.1. Introduction

Vrede is a South African town situated in the Free State province under the Thabo Mofutsanyane district, under the authority of Phumelela local municipality (DALRRD, 2022:232-236). Vrede is one of three small towns that make up the Phumelela local municipality.

It is positioned right at the provincial border of Mpumalanga province and near the Drakensberg mountains and it is 196.4km away from Johannesburg via the national road N3, where Vrede is located 45km east of the N3 via the provincial roads R34 and R103 that connects to the N3 road (Figs. 19 and 20).

Based on the data collected from Department of Statistics South Africa (Stats S.A), coordinates are 27.4207°S and 29.1777°E, at an elevation of 1.678m above sea level.

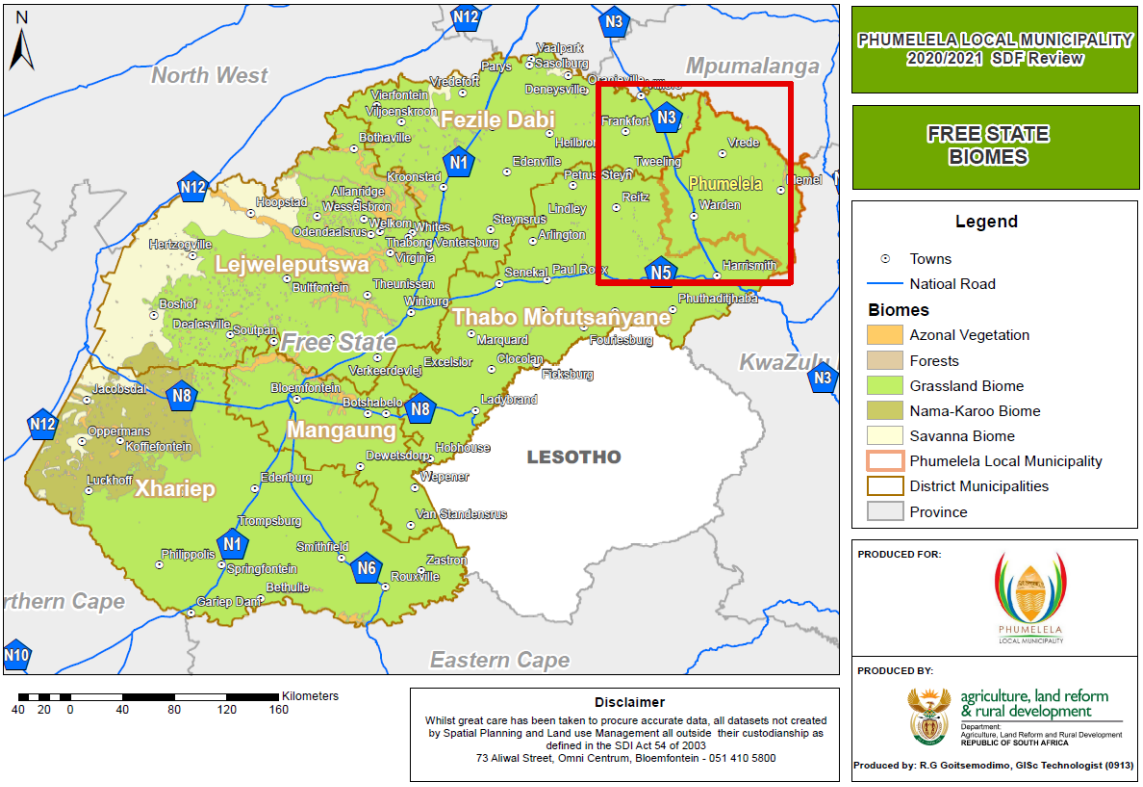

Figure 19 | Free State districts. Vrede is located in Thabomofutsanyane district (red square)
Source | Phumelela Local Municipality

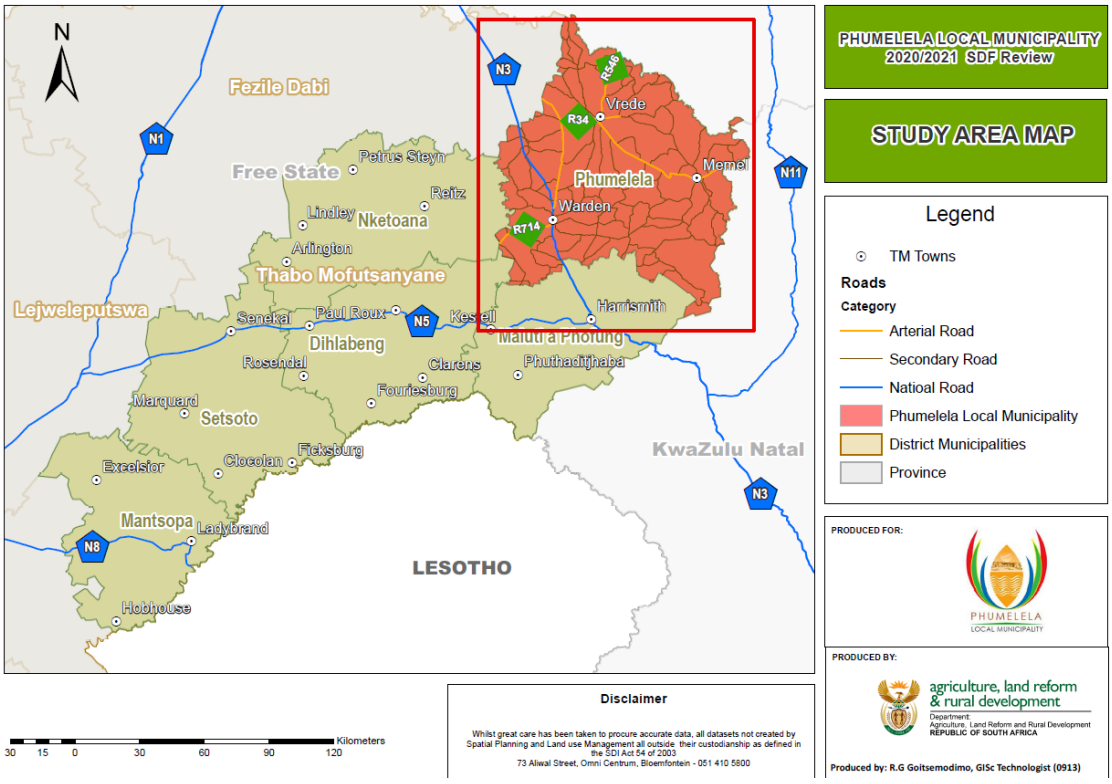

Figure 20 | Phumelela municipality. Vrede is located in two neighbouring towns - Memel and Warden (red square)
Source | Phumelela Local Municipality

5.2. Brief historical overview

Vrede was established as a town in 1876, according to the chronological order of town establishment in South Africa based on Floyd (1960:20-26). It was set in the Orange Free State by the Voortrekkers on a farm called Krynauwstlust, whose borders we can see in Fig. 21. Its location was not a peaceful one, as it came out from a territorial dispute between the Dutch and the British regarding where the town was to be settled. After the dispute, an agreement was reached and the town was called Vrede which is a Dutch word meaning ‘Peace’.

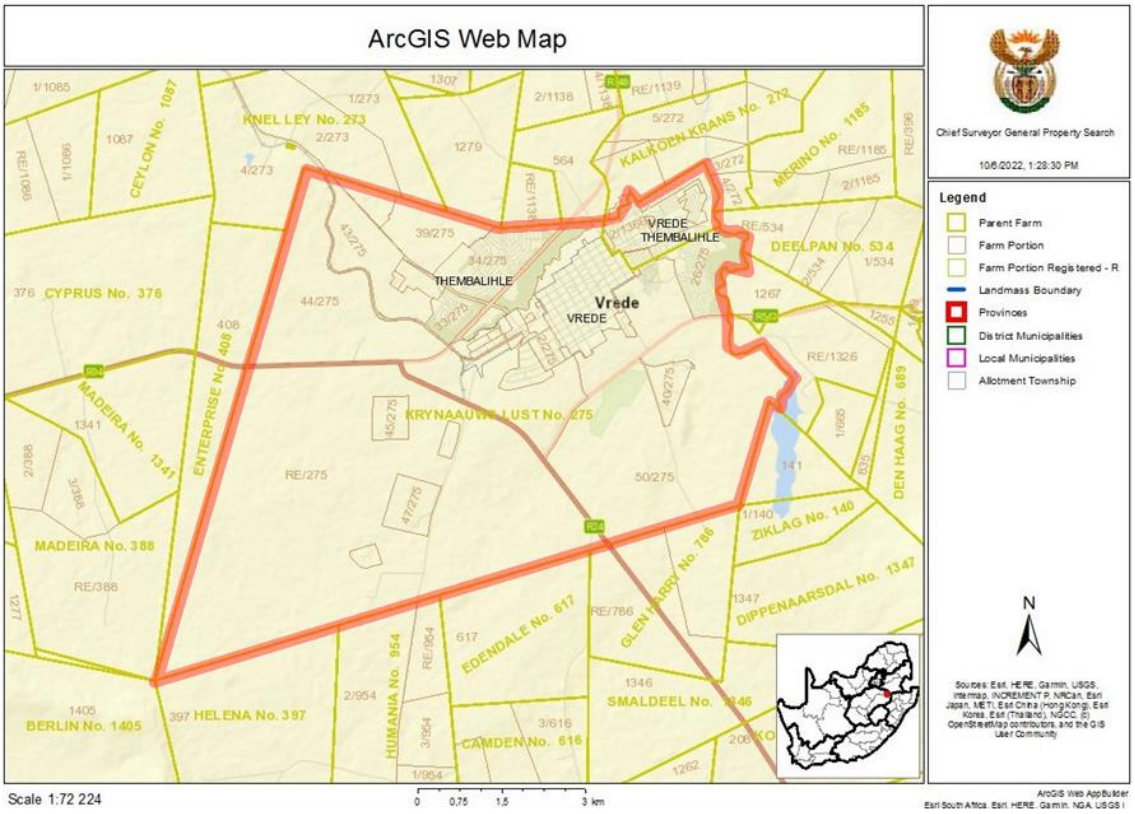

Figure 21 | Krynaauws farm and surrounding farms (orange line outlining Vrede)
Source | (https://csggis.drdlr.gov.za/psv/)

In 1877 the first plots were sold and, according to the surveyor general drawing, the foundation for Vrede’s’ layout was approved, with the church being one of the first buildings to be erected and centred within the town. Fig. 22 shows the setting of the regular gridiron that structures the general road network, and whose external perimeter has the approximate shape of a rectangle with the alignment of its longest side in the SW-NE direction. The NW border of the town has an

organic delineation as it faces the Empungeni river and therefore the limits of the reticule take the form of its meander.

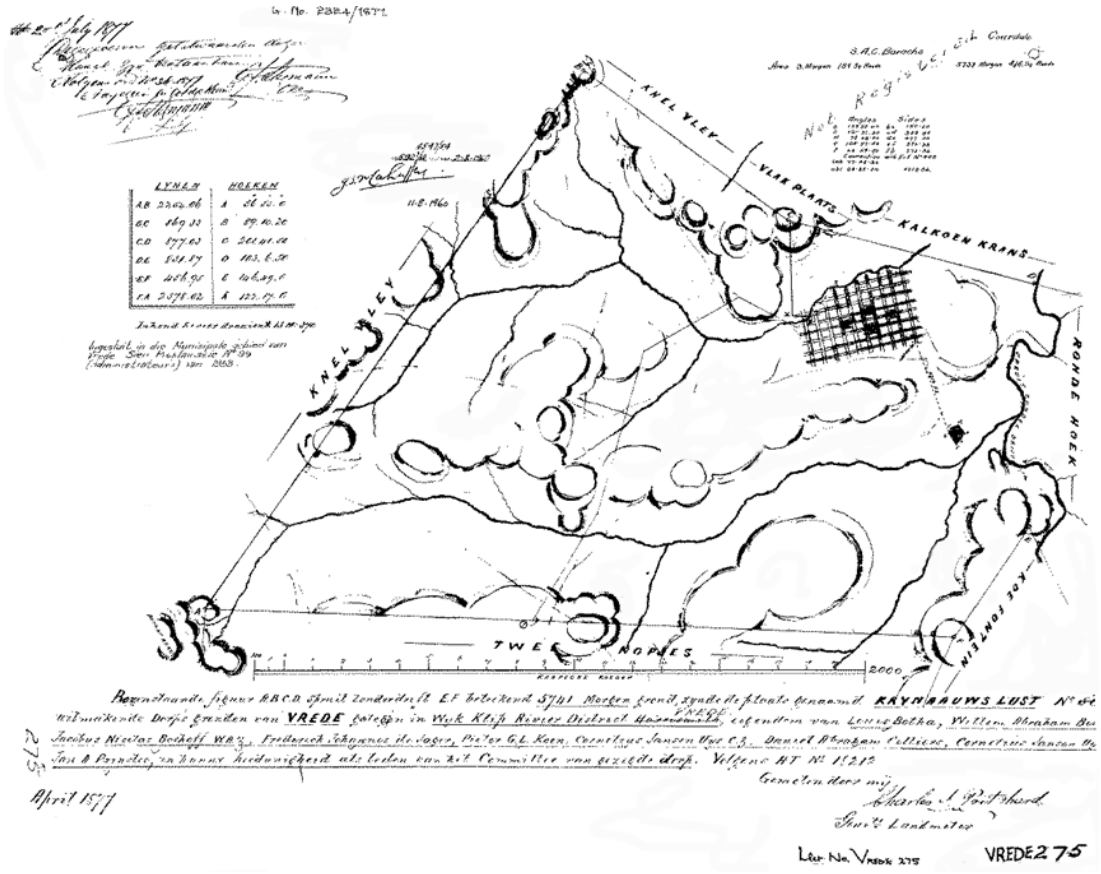

Figure 22 | Vrede town layout in 1877
Source | South African Surveyor General Depository

Based on the previous illustration and on a Google Earth image, Fig. 23 shows an interpretative map of the city's evolution from 1877 to the end of the apartheid. The blue lines refer to the street network of Vrede town from 1877-1989. The yellow lines indicate the street network evolution between 1989-1994, as an outcome of the settlement's expansion that gave rise to the creation of Thembalihle township, established in 1989 for the native Africans.

Thembalihle design and its expansion took place in a planned way, as shown by Fig. 24 and according to the surveyor general drawing, despite relying on the pre-existences of the informal city that had in the meantime grown up on the fringes of the formal city Thus, from 1989, Thembalihle township formally expanded and grew in sectors outward to the periphery. These sectors are referred to as 'wards' and numbers 1 to 5 represent them and their location taking Vrede town as the reference.

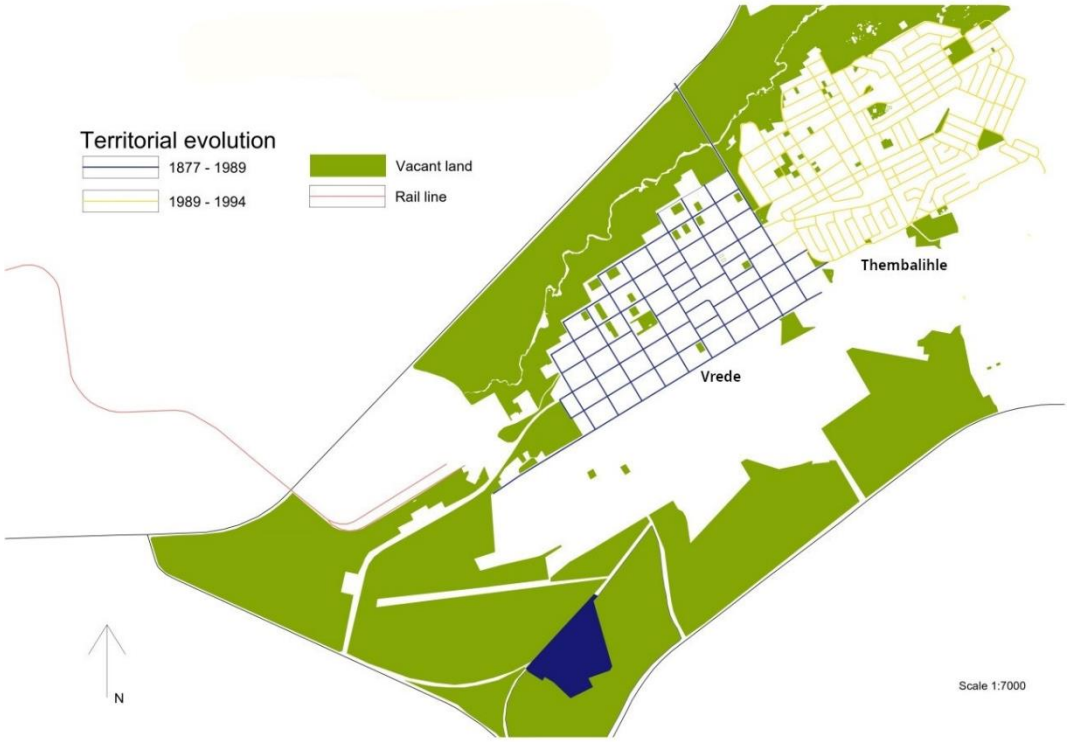

Figure 23 | Vrede town and Thembalihle township territorial evolution during Apartheid
Source| Created by author through Google maps imagery in Autocad

The reading of the plan in Fig. 24 shows how the growth of the township was intended to move away from Vrede town, by taking as an example the first planned establishment, which was to be located in ward number 1, Northeast to the town, in its periphery. Wards number 2 to 5, surrounding it, reinforce the side-line urban expansion. Concerning the types of houses that were built within the township, they were to follow the *matchbox* typology housing previously referred (Cfr. Fig. 14 and Fig. 18), which was state-subsidized housing '*as the native Africans could not own land*', and was mass-produced all over South Africa. This also happened in Thembalihle township.

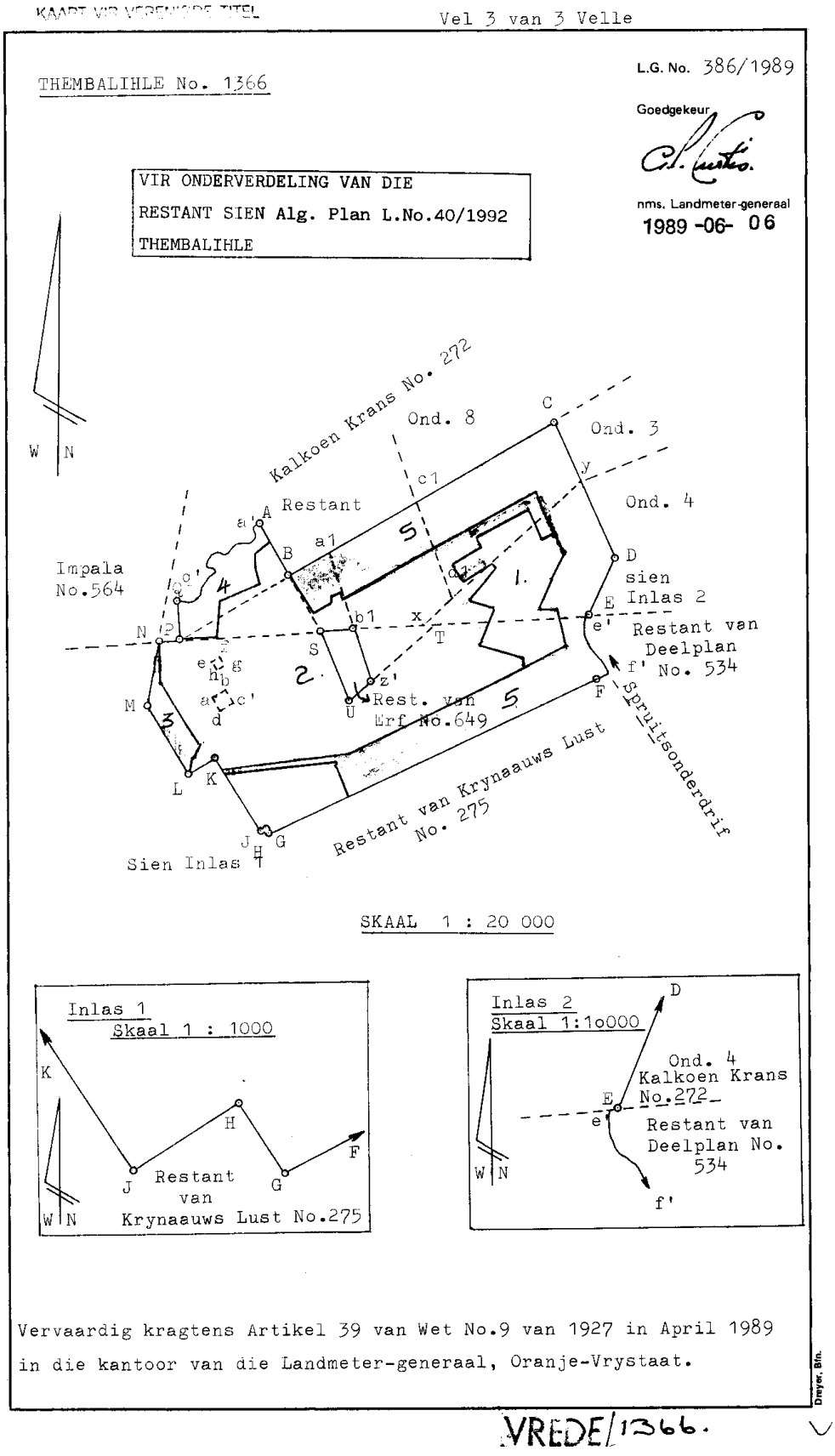

Figure 24 | Thembalihle township sub-division in 1989
Source| South African Surveyor General Depository

5.3. Morphology and Structure of Vrede

The analysis of Vrede's morphology support on the *Structural Development Framework* (SDF) map of Vrede town and Thembalihle township which served as the base for both drawing schematic plans and the analysis that will follow (Fig. 25). The SDF map shows Vrede town and Thembalihle township and their future extension, characterizing the area under four subjects: land uses, future development proposals, surface infrastructure, and geographical features (Fig. 25). These elements were used in the apartheid city model to racially segregate people in the landscape of South Africa, as I will discuss below and further explain from Fig. 31.

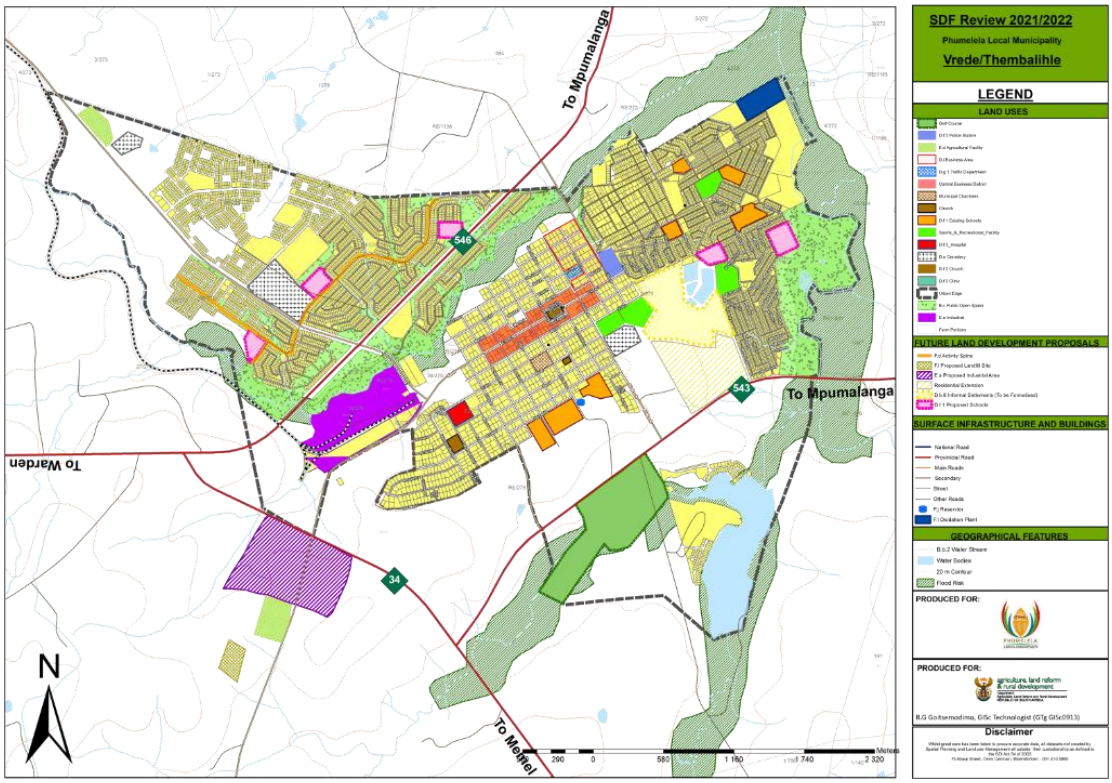

Figure 25 | Vrede town and Thembalihle township SDF Map (Land Use map) | 2022
Source | Phumelela municipality town planning department

The morphology of Vrede settlement is a dual one, configured by a more regular shape on the west side on almost flat land, and a more organic shape on the east side that results in greater diversity, namely regarding the plot sizes and the road arrangement. The former is Vrede town and the latter Thembalihle township. Indeed, regarding the street layout, there is a difference between the laying of the roads in the town and in the township. In town, the streets are generally linear and orthogonal and are designed to form a gridiron, a pattern which that dates

back to colonial times. Thembalihle township, on the other hand, has both curvilinear streets and straight lines, but they configure a much less regular pattern, where blocks have distinct shapes and sizes (Fig. 26).

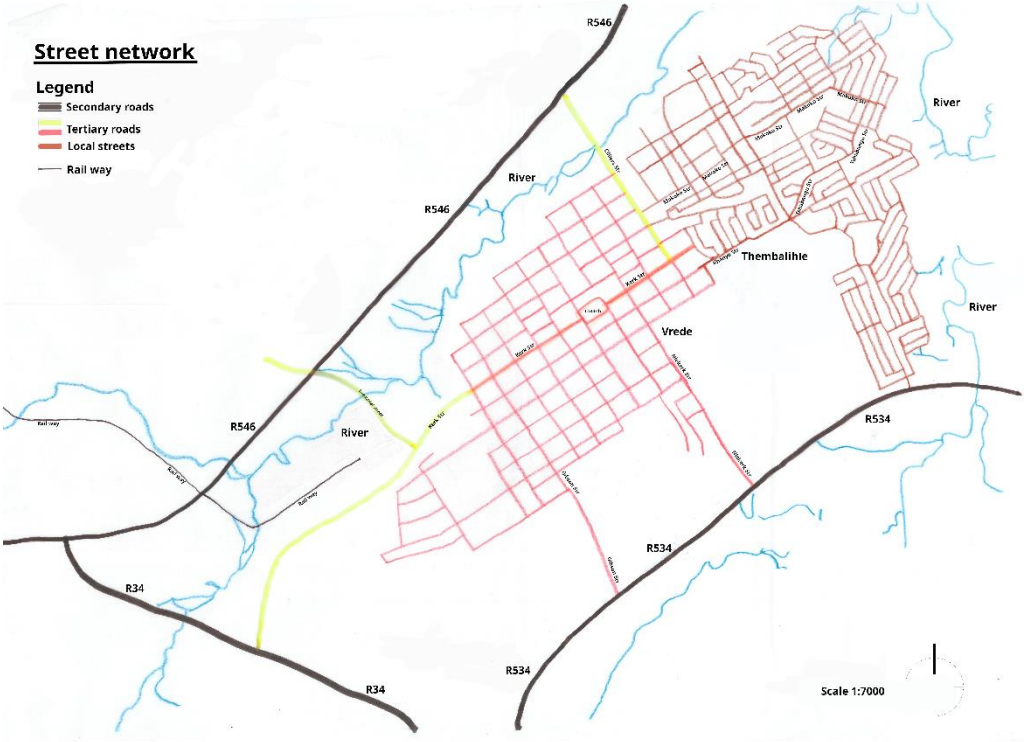

Figure 26 | Vrede town and Thembalihle township street network
Source | Author, adapted from SDF (Phumelela municipality, 2022)

According to Google maps, in Vrede town the average yard/plot size is of 1.756,83m2 with a perimeter of 169,49m (highlighted in red in Fig. 28), whereas the average sizes for Thembalihle township is about 226,17m2 with a perimeter of 63,20m (likewise highlighted in red in Fig. 27). Within the plots, the types of houses also differ in Vrede town and in Thembalihle township. In the former there were mostly single-family houses. In the latter there were the matchbox typologies, which were designed to be replicated under two type-versions that were approved during the apartheid regime (Cfr. Fig. 14 and Fig. 18).

Fig. 27 | Vrede town plot size
Source | Google Earth, made by author

Fig. 28 | Thembalihle township plot size
Source | Google Earth, made by author

Regarding the whole of the settlement, the road network illustrated in Fig. 26 has a three-level hierarchy, according to DALRRD (2022): secondary roads (a black line in Fig. 26) tertiary roads (coloured yellow and red in Fig. 26), and that I designate as “local streets”. To this network, I add the railway line (black thin colour in Fig. 26). The secondary roads are provincial roads: R546, which leads to Mpumalanga Standerton; R34, which leads to KwaZulu Natal province, specifically connecting to Newcastle; and R543, linking to Volksrust town, the closest town to Vrede. Tertiary roads are the accesses to Vrede town and Thembalihle township, according to the SDF (2022).

5.4. The tenets of the Apartheid city model in Vrede

Another framing aspect of the analysis of Vrede town and Thembalihle township is the set of tenets that Davies (1981, p.64) and Frescura (2000) identify as the foundation of the apartheid city model. Some of them are coincidently referred by both authors, despite their distinct designation; others are specific to each author. I will attend all of them in a general way in Vrede analysis, although later I will select those more closely related to, or that best fit, the case study specificity to a more in-depth discussion.

The analysis is also supported by the previously discussed examples of two metropolitan cities of South Africa – Johannesburg and Cape Town – and one from Namibia: its capital city that over the apartheid was under South African jurisdiction, by then called Windhoek, and its shanty townships.

5.4.1. Segregation of the Residential Areas

One of the tenets of apartheid city present in Vrede urban area is the 'Segregation of Residential Areas' (Frescura, 2000), to which the morphological structure of the settlement just described is a clear demonstration. Indeed, during the apartheid era, the distinct layout was assigned to different population groups: the more regular layout of Vrede town was mostly occupied by the White population group, whereas the more organic layout in terms of street network of Thembalihle township was mostly occupied by the native Africans. Also, regarding income, segregation was clear as Thembalihle township (brown colour in Fig. 26) was inhabited by people with low income, while Vrede town (red colour in Fig. 26) by high income population, which was mainly the White Group.

Complementing the above, segregation was built and reinforced through the use of a set of artifices. On the one hand, and still referring to morphological features, topography had a determinant impact on Vrede's layout. The use of natural features (Frescura, 2000) was, in this case, a benefit used for the construction of segregation, even if emanating from colonial times. Indeed, as mentioned before, it goes back to 1877 when the state, establishing a new town, placed the White group on the top of the hill – Vrede town –, and the native Africans at the bottom. This placement displays a close similarity with the one shown by Friedman (2000) when illustrating how Windhoek was situated at the top of the hill and Klein Windhoek and Katutura were positioned at the bottom of the hill; but it also corresponds to the principles of township design outlined by Floyd (1951), as Thembalihle township was established in Vrede's periphery.

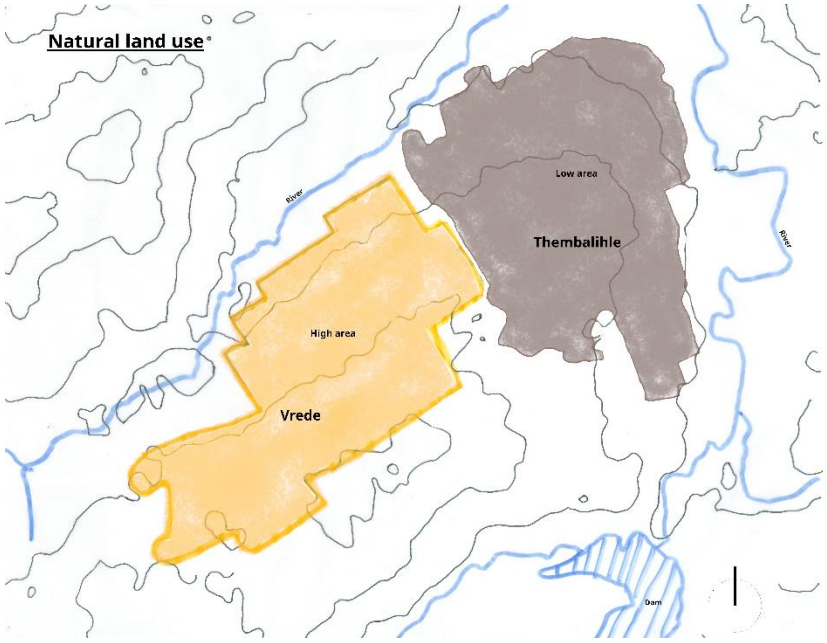

Figure 29 | Vrede town and Thembalihle township positioning regarding topography
Source | Author based on South African website cartography

Another aspect of segregation shown by the settlement's arrangement concerned the ownership of the residential plots, as the single-family ones, in Vrede town, were privately owned, mostly by the White population, whereas the matchboxes, in Thembalihle township, were state-subsidized and intended for the housing of the Native Africans. Other principles of the apartheid city model embedded by Vrede are described more extensively below.

5.4.2. Limited connections between town and township

During the apartheid, there were just a few accesses between the Vrede town and Thembalihle township, matching the tenets of the apartheid city model that Frescura (2000) refers to as 'Single access, single exit planning'. This restriction aimed at establishing a barrier that racially segregated the urban landscape of Vrede town and Thembalihle township at the same time allowing to monitor the movements between them, forming a limited set of roads that were used as tool of control and surveillance over times of unrest.

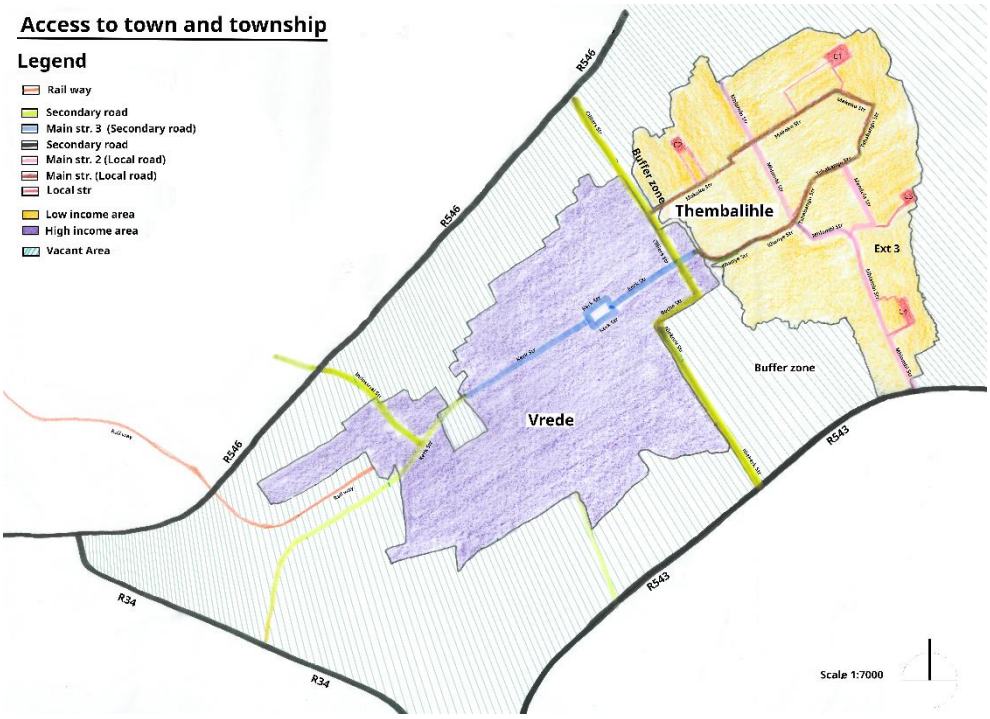

Figure 30 | Major Accesses to Vrede town and Thembalihle township
Source | Author based on SDF (2022)

Indeed, Thembalihle township had only one way in and one way out. The name of this street is Makoko street and it connected with Khanye street, this coming from the police station into Thembalihle township (both coloured brown in Fig. 30). A second access to the township – to the 'extension 3' area – was coming from R543, which accessed it directly through Mhlambi street.

Another main access between Vrede town and Thembalihle township was through the road coming from R546, North-West to the settlement. The name of this street was Cilliers street and during the apartheid regime it divided the two places right at the middle. By then, this street was coupled with a buffer zone of vacant space to its left side, while on its right there was a business area corridor going right up to the crossroads where both the police station and jail cells were located, in connection to Botha street and Niekerk street, south east of Vrede town. The police station and the jail cells are situated on the left of Cilliers street, also acting as a barrier to the implementation of the influx control policy.

Lastly, there were two other accesses to Vrede town. The first one was through Gibson street, on the South-West of Vrede town, having vacant land on the sides until one enters the town; the second one, going past the industrial area of Vrede,

North-West of the town, was an industrial street (yellow in Fig. 30), connected to Kerk street, in the centre of Vrede town.

5.4.3. Distances to the CBD

The distance from the various centres in the township to Vrede town centre, where the *Centre Business District* (CBD in Fig. 31) locates and the livelihood of the people is concentrated, is also a feature for racial segregation under the apartheid city model rationale. Davies (1981: 64, 71) list it as an 'essential structural elements' of the model, referring to it as an essentially White area from where Blacks have been decentralised. Likewise, the centre of Vrede town has all that is required for a human being to have a good living. During the apartheid era, the native Africans were not allowed in that 'area of opportunities' due to the influx control policy, except when working for the White group, and leaving once the work was done.

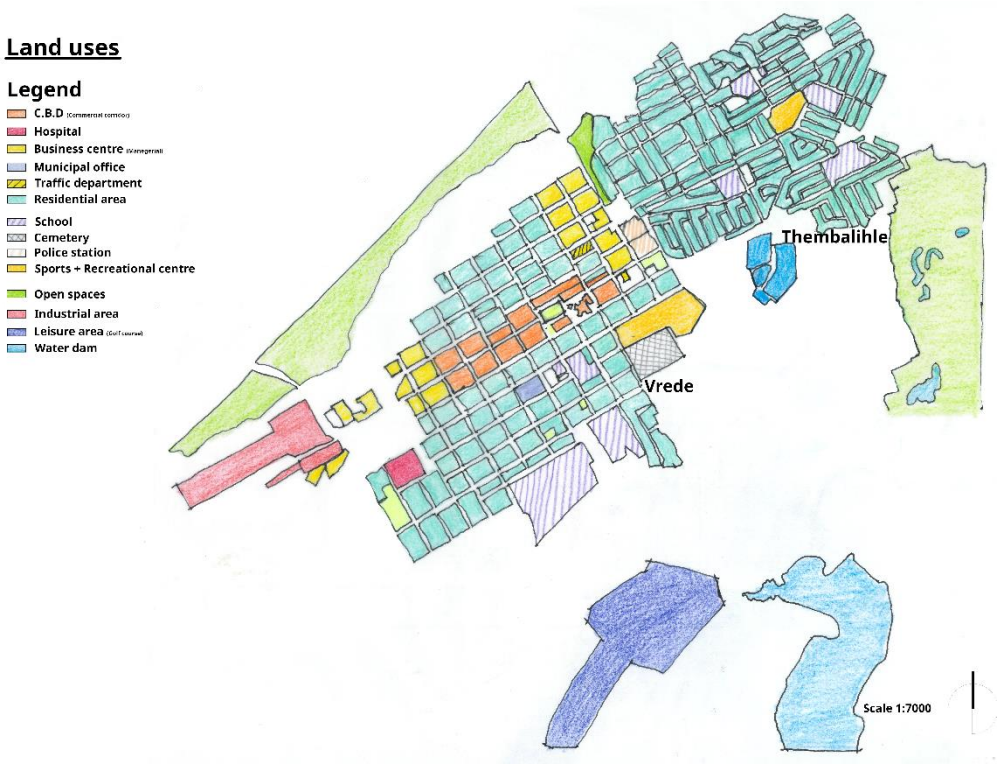

Figure 31 | Vrede town and Thembalihle township land uses
Source | Author, adapted from SDF map (Phumelela municipality, 2022)

Fig. 32 illustrates the distances that the native Africans had to travel to access the CBD, here represented by the central black square, where the church locates. The green line represents the path that the population located within the blue centre had to travel to access jobs and commercial activities. Taking from

Evungwini secondary school, which is the furthest point that is surrounded by Native Africans, the distance to Vrede's town centre by the church is about 2.19 km through Khanye street that ultimately connects with Kerk street by the T-junction at the corner of the police station. Regarding the street starting next to a Christian church in "extension 3", which is surrounded by the native African population, to the centre of Vrede town, the distance is about 1.88 km, if one takes Mhlambi street that connects with Khanye street by the crossroads intersection that ultimately connects to Kerk street by the T-junction on the side of the police station, heading straight to the centre of the town and its church.

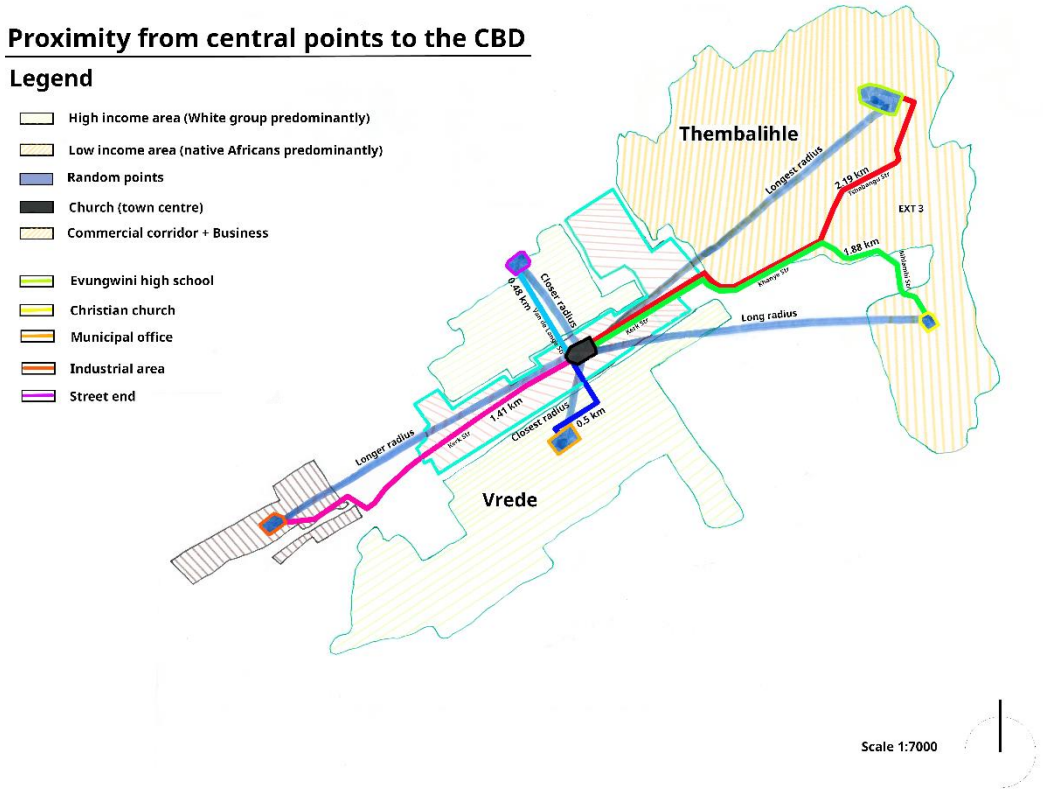

Figure 32 | Distances in reference to the centre (Church) from Evungwini high school, Christian church, Municipal offices, the industry and the outer road of the town
Source | Author, adapted from SDF map (Phumelela municipality, 2022)

Focusing now on Vrede town, the next long distance to acknowledge concerning the access to work opportunities in central Vrede refers to the industrial area, on its furthest western side. For workers that live within the town centre, the distance is of 1.41 km, but for workers that live in the peripheries it extends to 3.6 km (Fig. 32). Finally, regarding the distance from the two other centres to the town central square – one represented by the municipal office and the other referring to the

end street of Vrede town – is, respectively, of 0.5km and 0.48km connecting to Van der Lange street.

5.4.4. Infrastructure and equipment spatial distribution

The arrangement of infrastructure and equipment within the city is another key aspect of the apartheid city model that impacts on racial segregation, which according to my understanding falls under the topic of 'social infrastructure' highlighted by Frescura (2000). In Vrede town and Thembalihle township, infrastructure and equipment's spatial distribution should be today slightly different from the one in the apartheid era, but, maybe not so much. In this regard, despite supporting data has not been found, the architectural interpretation of the existing buildings allows for the attempt to reconstruct the setting of the main infrastructures and equipment within the settlement at the time.

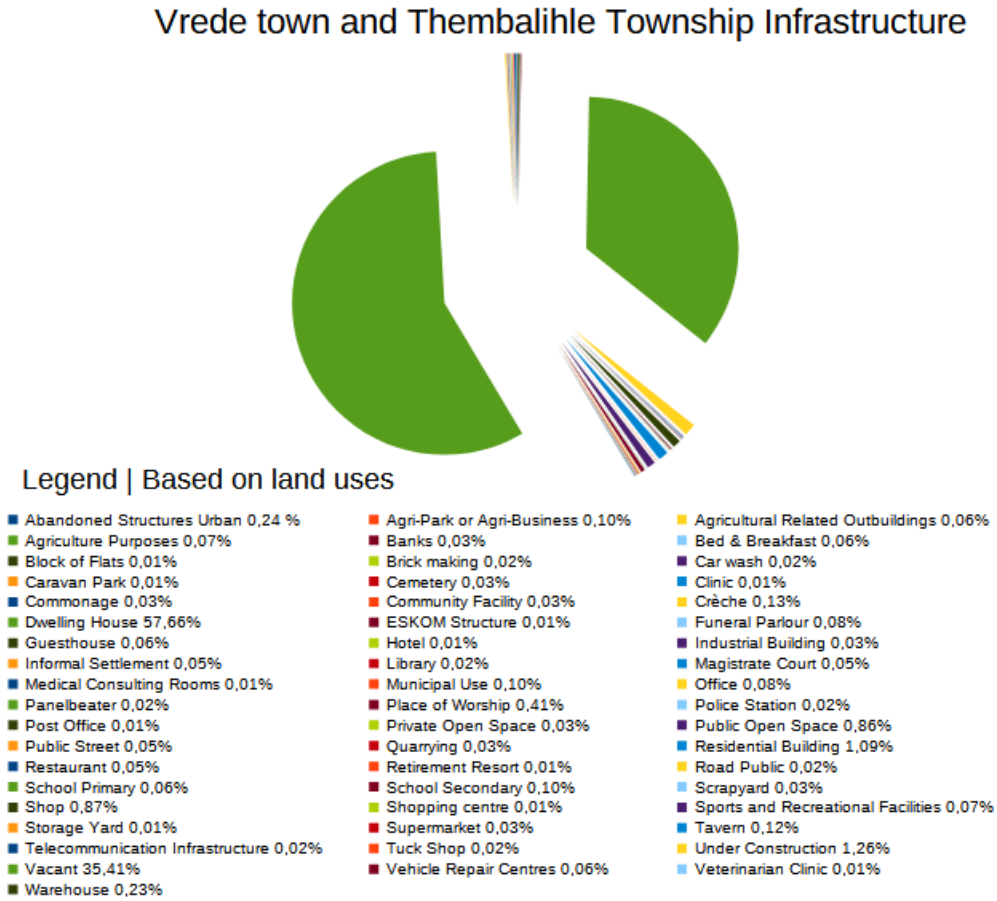

Fig. 33 | Percentage of infrastructure in Vrede town and Thembalihle town
Source| DAARLD (2022)

Fig. 33 shows the percentage number of land uses existing in Vrede town and Thembalihle township in 2022, as to their relative quantity within the whole. The observation of the values associated with each land use shows that those

referring to infrastructures and equipment are residual, mostly not exceeding centesimal values. Places of worship, with 0.41%, is the most expressive equipment, followed by creche with 0.13%. Sports and recreational facilities (0.07%), school primary (0.06%) and magistrate court (0.05%) are next on the list. Taking a few others as an illustrative example: the cemetery and the community facility both reach 0.03%; library and police station, each with 0.02%; clinic and veterinary clinic are examples of equipment/infrastructure with only 0.01%. Although, as said above, this reality refers to 2022, we believe that the presence of infrastructure and equipment would not be more significant during the apartheid period in Vrede.

Thus, within the context of the above paragraph, Fig. 34 shows an interpretative map aiming to recreate what would have been the distribution of infrastructure and equipment in Vrede town and Thembalihle township during the apartheid regime. Taken as true, the image shows a higher concentration of important equipment and infrastructure in Vrede town and a lower concentration of equipment and infrastructure in Thembalihle township.

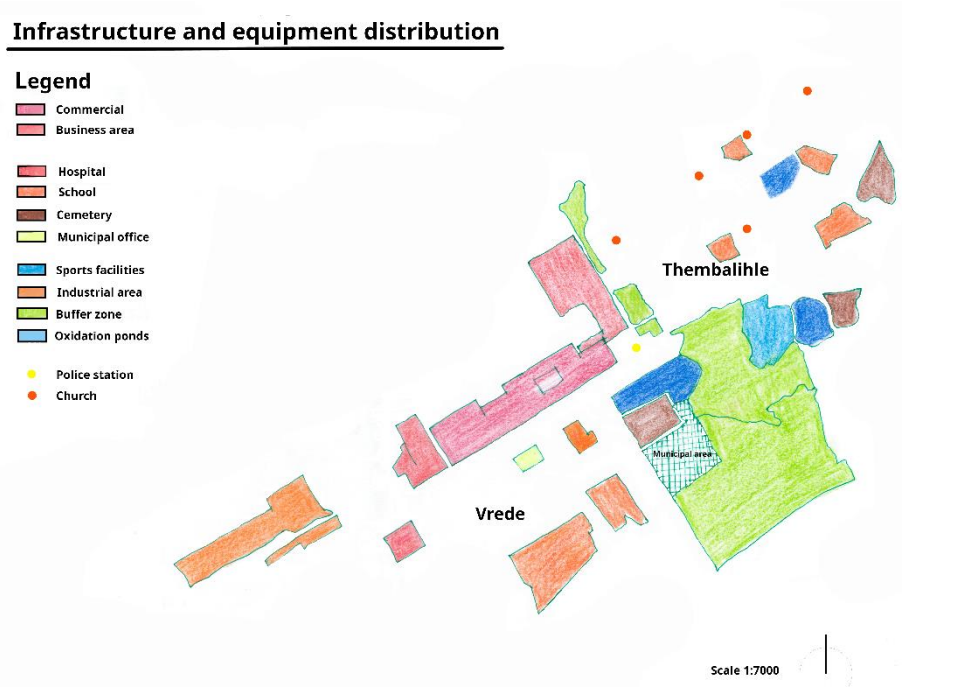

Figure 34 | Vrede two and Thembalihle township infrastructure distribution during the Apartheid regime
Source| Author, adapted from SDF map (Phumelela municipality, 2022)

In Thembalihle township were mainly found a sports facility (dark blue colour), a cemetery (brown colour), some education centres – 1 high school and 3 primary

schools –, and 5 churches (dark orange colour). The infrastructure represented in light blue refers to the sewer oxidation ponds, which acted as a barrier integrated with a buffer zone of vacant land (green colour) that was used to racially segregate and exclude the native Africans that resided in Thembalihle township from socio-economic activities. There was no hospital in Thembalihle township during the apartheid regime only one small clinic was built for the population of the township.

This buffer zone separating Vrede town and Thembalihle township included the police station, as well as the cemetery that was reserved for the population residing in Vrede town. The police station aimed at controlling the influx of natives into Vrede town as per the influx control policy that was enacted and implemented during the apartheid regime, as previously said. As to the sports facility located on the side of Vrede town, referred to above, it was also integrated into the buffer zone dividing the two parts of the settlement.

The hospital (light red) is set in the western part of the gridiron, as shown in Fig. 34. The orange colour displays the industrial area of Vrede town, where the manual labour was reserved for the native Africans, coming a long distance to access it – about 3.6km, according to the proximity measurements mentioned in the previous section.

Extending now this analysis to other work areas within the city, despite not referring to infrastructure and equipment, in Vrede town, most of the clothing shops were located along the commercial corridor trip (red colour), and all the managerial jobs were located where the offices for working for the people residing in Vrede town were located as shown in dark red. Aside from this economic node, there is also an industrial area (light orange), where job opportunities are located. Regarding Thembalihle township, there are no commercial and industrial nodes, this meaning that there were fewer chances of having a good livelihood for the black population residing there.

Lastly, I refer to other amenities displaying segregation policies, such as the pavement of streets, and toilets. Regarding the former, during the apartheid, Vrede town had asphalt paved roads, but in Thembalihle township the roads were not paved – they would be topped with gravel (G5) from a quarry, just to make

the road even and less muddy, even if eventually that topsoil G5 would erode with the water in rainy days. These roads, I added these as the fourth level to the road hierarchy mentioned in the sub-section and call them “local streets” (brown colour in Fig. 26).

5.5. Socio-economic characterisation of Vrede

The data analysed below issues from the 2011 Census. Although it refers to a reality 17 years after the end of Apartheid, and there is a census survey dating from 2001, this was not as complete as the one we analysed here and which allows me to better support my purpose. Indeed, my hypothesis is that the 2011 Census may still help to picture the past. Such a drastic change as the end of a 46-year Apartheid regime will take time to produce an impact on the landscape, and if any did occur until 2011, then it is expected it reflects (some) racial integration and a diminishing of the unbalances between the town and the township. Thus, the analysis below focuses on a set of selected topics (among those available in the Census) intending to check for that (or their signs). Whenever data shows segregation and an uneven spatial distribution of a certain service/amenity, I can only conclude it should have been worst before; so, in a certain way and up to a certain extent, the analysed data must picture a little of what Vrede town and Thembalihle township have been during the Apartheid.

According to Stats S.A. (2011), the data for Vrede is split into two – Vrede as a town and Thembalihle as a township and a town. I will place them in comparison, as did until now. The aspects that are being analysed were set under three major thematic groups – urbanization, demographics and socio-economic status. The focus is to seek racial integration/segregation in the town and the township in a more objective way, through figures that support the previous mapping.

5.5.1. Urbanization

According to Stats S.A. (2011), Vrede town is 100% urban (Fig. 35), which means no place is occupied by tribal/traditional houses (0%, according to Stats S.A.). Indeed, the consultation of the Chief Surveyor-General (Fig. 21) illustrates how Vrede town is still today surrounded by farms, most of which are privately owned. Similarly, the majority of the houses in Vrede town (68.8%) are privately owned

and paid off (Stats S.A., 2011). In relation to Thembalihle township, Stats S.A. (2011) likewise refer to it as 100% urban (Fig. 35 & 36), this meaning as well that no tribal/traditional houses are to be found (0%, according to Stats S.A.). However, in contrast to Vrede town, houses are not owned by its residents; they are fundamentally of the *matchbox* typologies and state-subsidized, as referred to above.

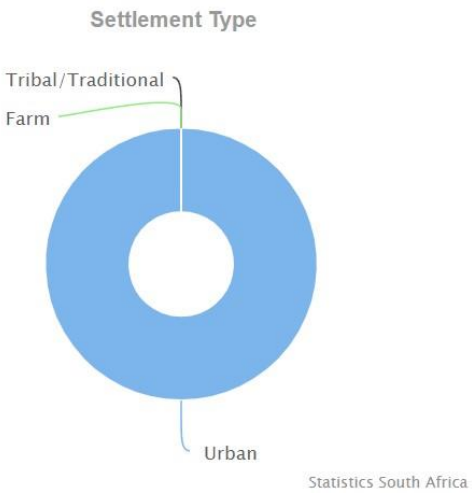

Figure 35 | Vrede town settlement type
Source | Stats S.A., (2011)

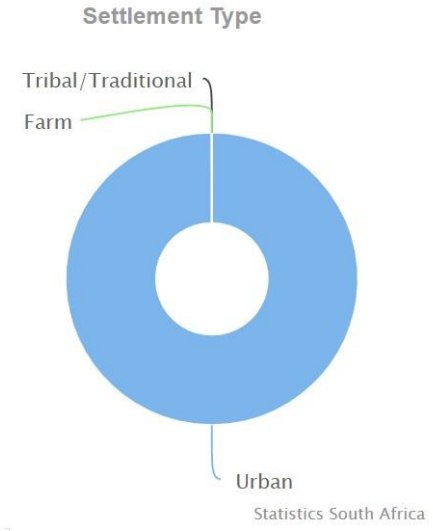

Figure 36 | Thembalihle township settlement type |
Source | Stats S.A.,(2011)

As to the number of dwelling houses, in Vrede town, there are 689 of those buildings, 99% of which are formal dwellings, whereas in Thembalihle township there are 4.166 dwelling houses, 78.3% of which are formal ones. Housing basic infrastructure also shows high differences between both places. In Vrede town, 95.8% of the dwellings have a connected sewer line (Fig. 39) and 91.1% of those have piped water inside the house, with 94.3% of the dwellings having electricity. In contrast, in Thembalihle township, 87.8% of the dwellings have a connected sewer line, 9.1% are pit toilets without ventilation, 1.3% use the bucket system, and lastly, 1.2% do not have toilet facilities (Fig. 38). Concerning water supply, only 27.8% of those dwellings have piped water inside the house, however, 87.8% of the dwellings have electricity.

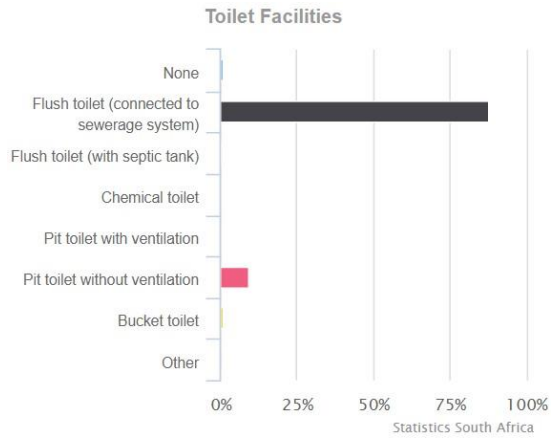

Figure 37| Vrede town toilet facilities
Source | Stats S.A., (2011)

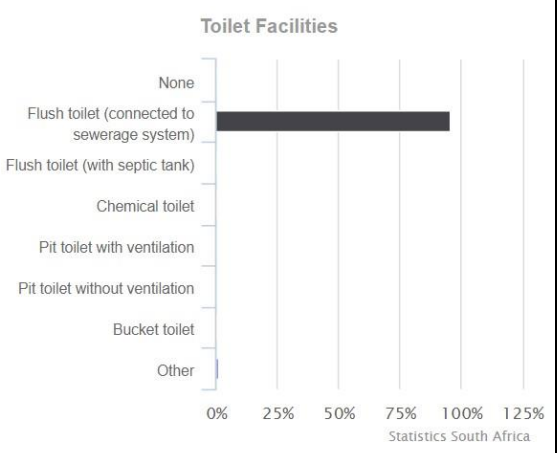

Figure 38 | Thembalihle township toilet facilities
Source | Stats S.A., (2011)

Regarding the general source of water distributed to the public, in Vrede town, 95.6% of the water supplied comes from the regional/local water scheme, 2.5% comes from the water tanker, and 0.3% of the supply of water comes from boreholes (Fig. 37). As to Thembalihle township, the main source of water is the regional/local water scheme, making about 98.7%, and 0.8% of the water supply comes from the boreholes (Fig. 38).

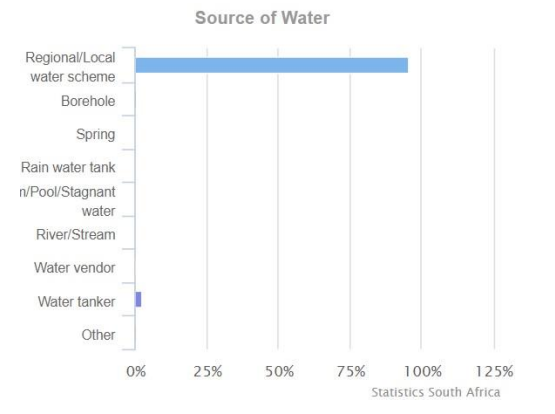

Figure 39 | Vrede town water source
Source | Stats S.A., (2011)

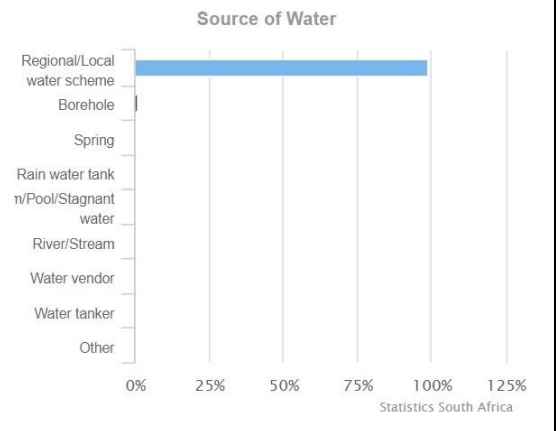

Figure 40 | Thembalihle township water source
Source | Stats S.A., (2011)

5.5.2. Demographics

The total population of Vrede town is 1.962 inhabitants and a population density of 42 inhabitants/km2 (Stats S.A., 2011). Regarding the population groups, Fig. 41 illustrates the different races that occupy the town: the White group is the larger one with a percentage of 49.8%, closely followed by the Black African group with 47.3%. As to the other races, 1.8% is the Asian population, and 0.6% is the coloured population. Considering the age composition to try to understand the weight of the working age group, out of the whole population, 18.6% of people are between 0-14 years old, 63.1% of people are between 15-64 years old (working-age population bracket), and lastly, 18.3% of people are 64 years old upwards. The average size of a household in Vrede town is 2.4 people with a dependency ratio of 58.4%.

As to Thembalihle township, it has a total population of 15.727 inhabitants and a population density of 4.373 inhabitants/km2 (Stats S.A., 2011). Within it, the dominant race group is the Black Africans that occupy the township at a percentage of 98.7%; the coloured population and the Asian population correspond to 0.3% each (a total of 0.6%), and lastly 0.2% people are of the White group (Fig. 42). About the age composition, 33.6% of people are between 0-14 years old, and 61% of people are between 15-64 years old, and finally 5.5% are 64 years old upwards. The average size of a household in Thembalihle township is 3.8 people with a dependency ratio of 64%.

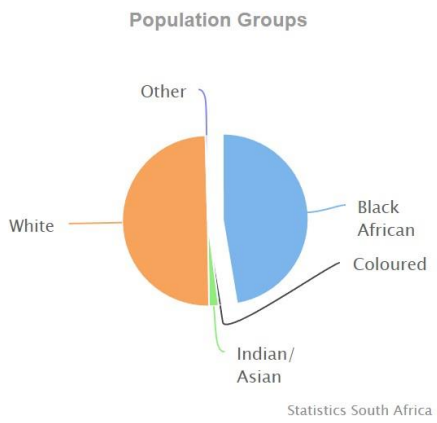

Figure 40 | Vrede town racial population groups
Source | Stats S.A., (2011)

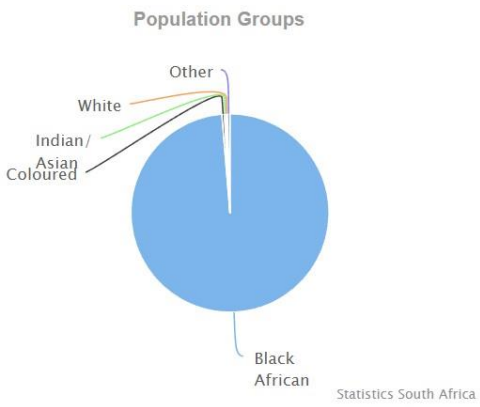

Figure 41 | Thembalihle racial population groups
Source | Stats S.A., (2011)

5.5.3. Socio-economic status

The comparison between figures XIV and XV presents the differences between the household income of Vrede town and Thembalihle township. Fig. 43 shows that the highest average household income of people living in Vrede town is R76.401,00-R153.800,00 and the percentage of the population that falls into this category is about 17.6%. Contrasting with it, the highest average household income in Thembalihle township is R19.601,00-R38.200,00 with about 26.5% of the population falling into this category (Fig. 44), according to Stats S.A. (2011). Regarding this difference, and taking into account some data previously discussed (Cfr. Davies, 1981:61), my assumption is that it has to do with the fact that people living in Vrede town occupy White Collar jobs in the job market and people from Thembalihle township mostly occupy Blue Collar jobs.

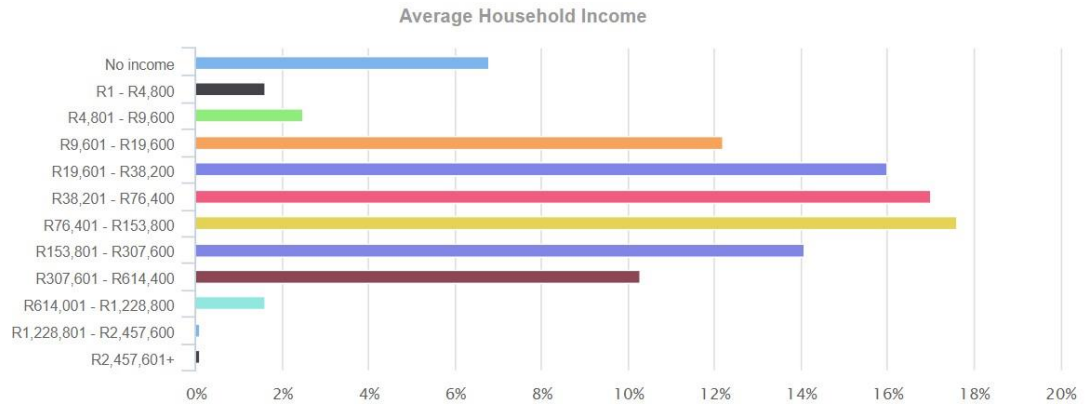

Figure 42 | Vrede town average household income
Source | Stats S.A, (2011)

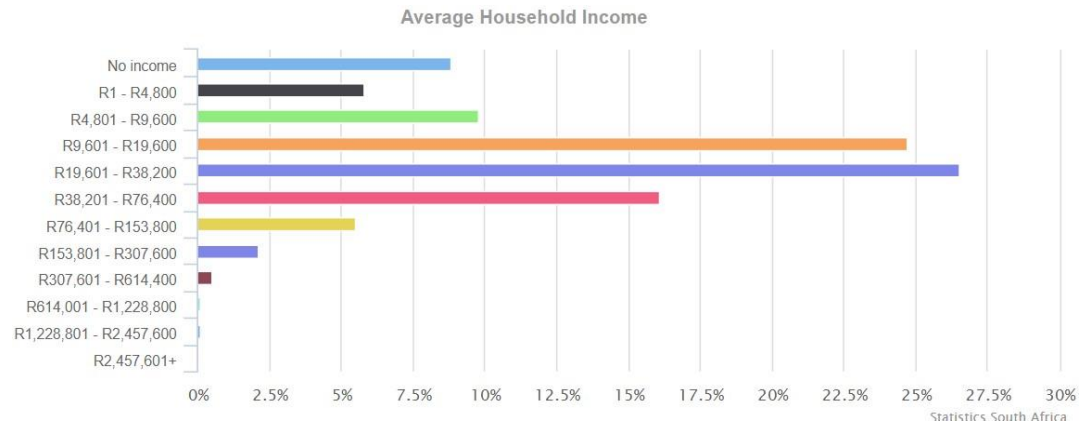

Figure 44 | Thembalihle township Average household income
Source | Stats S.A, (2011)

As for the lowest average household income, it is R1.00 - R4.800 for both Vrede town and Thembalihle township, but the difference lies in the percentage of the population that earns this much in these two places. In Vrede town, this is 1.6% of the population and in Thembalihle township is 5.8% of the population. The different living conditions and inequality amongst the people living in Vrede town and Thembalihle township are further shown by the observation that in the latter the three highest income brackets seem to have a residual impact on the population (both with 0,1%), still affecting some of the inhabitants of Vrede town. Here, for instance, 0.1% of the population earns in the range of R2.457.601,00 while in Thembalihle township there is no household earning in that range.

Conclusion

Conclusion

My dissertation reflects on the Apartheid city as delivered in South Africa during 1948-1994. I discussed the topic from a set of authors and from some distinct perspectives before I addressed the main research question based on my hometown: 'is Vrede an apartheid city?' Or set in a different way: is Vrede town and Thembalihle township a product of the apartheid city model?' Essentially, I wanted to understand how the apartheid took place within a specific and familiar location.

To answer this question, it was imperative that the background and history of the apartheid city was to be researched and while doing it additional queries came up. A secondary question was if the apartheid city was a tool to build or an apparatus to demolish something more than social segregation. The answer to this also demanded a thorough investigation into the background of the apartheid city model so then ultimately the answers would reveal themselves.

Therefore, history tells us that colonial planning in South Africa began in the 17th century when the Dutch first landed in the Cape approximately around about 1652, according to R. J. Davies (1981). Colonial planning had some traits of segregation as they already made use of the natural features to separate races. For example, in a colonial city, the colonialist would be situated at the top of the hill and the natives would be situated at the bottom of the hill. Also, as a principle, the colonialists aimed at dominating the natives whenever they would colonize a place. Thus, these two principles of colonial town planning resemble that of the apartheid city.

Later, in the 1800s, came a paradigm shift that led to the industrialization and the urbanization in South Africa. During this period, it was the time of the discovery of the gold and diamonds mines in Johannesburg and Kimberly respectively, these being the prime economic generators for the country at the time which brought about the need for South Africa to industrialize. The transportation of these valuable minerals required the expansion of the railway in the country to connect to these places and anywhere else there might be significant produce.

During industrialization, the working force was placed in such a way that the native Africans were offered blue/collar jobs and the White group was offered

managerial positions. Hence the wage gap between the two races was vastly different in terms of economic, social, and socio-economic structure, as was demonstrated above.

Some urban experiments took place over this period, namely in Cape Town, where the first African garden city – Pinelands Garden City – was established, bringing with it modernizing features to South Africa. This Garden city brought about more infrastructure and equipment in the landscape of the country, thus this was a positive development.

In 1924, the Modern Movement arrived in South Africa through the hand of architects like Le Corbusier, Walter Gropius, and others, who designed some buildings in South Africa, at the same time having an influence over the architects of the country. Three stages of the Modern Movement were identified in South Africa, maybe the most significant one pioneered by Rex Martienssen, even if for a brief period, whom supported by Le Corbusier laid the foundation for the distillation of the tenets of the modern movement in the Transvaal in the 1930s. The *Transvaal group* designed a significant number of buildings following the international style. Over its three stages, the Modern Movement, which also laid the bases for some segregation, namely through the Athens Charter and the creation of buffer zones in between certain land uses, modernized the landscape of the country. This was another tool that was nevertheless used for good.

Thus, before the apartheid city, there existed a segregation city that had similar tenets to those of the apartheid city. Durban and Pretoria were shown as examples of the transition from the segregated city model into the apartheid city. The state's control over the landscape of the country through legislation, enacting laws and policies, formally implemented racial segregation by the hand of the ruling party of the apartheid regime, using it as a state's instrument to coerce people from moving out of the native land.

The tenets of the apartheid city model were, thus, modeled over existing theories, which were modified to form the tenets of the apartheid city model. This took place when the National Party took over control of the country in 1948. After this, the formal implementation of the apartheid rules, such as the influx control policy (that prohibited native Africans to have access to the urban centre), occurred

making use of a selected number of features of other urban models. Buffer zones were then used to segregate people racially, as well as the implementation of rigid functional zoning.

Another aspect taken by the modification of the classical urban models, in particular from Hoyt's sectorial model, was the outward growth towards the peripheries, which was implemented in the apartheid city to locate the Native Africans in the peripheries, far away from the urban centre. This usage of that principle set the apartheid city as an instrument to demolish, as relegating people away from economic participation.

Apartheid city model was tainted by the intervention of the state. Through its legislation that promoted racial segregation a corresponding segregated urban morphology was established. A myriad of policies and regulations enacted in different years, aiming at controlling and surveillance Therefore I can conclude that based on the literature review and the analysis I performed taking Vrede as the case study, indeed Vrede was and still is an apartheid city. The model's implantation built some good through a number of modernizing features, namely infrastructure and equipment, both in terms of buildings and transport networks; but the apartheid city also proved to be a tool to demolish as it enforced and perpetuated racial segregation and inequality within the people. Killing the native Africans, ultimately resulted in a mass exodus of people who were forcefully moved away from the urban centres to be placed in the enclaves (*Homelands*), where only native Africans would reside. Thus, the state's apparatuses were used as tools of dispossession for the people, i.e., tools to demolish unity and promote segregation.

This led to an uneven playground between the races that occupied the country at the time, in particular within the cities, regarding the inequality in terms of quality of life. Placing the native Africans in the peripheries had far reaching consequences as they were subjected to travel long distances to work and access their livelihood. At the provincial/local level, the resources such as the infrastructure and equipment were distributed unequally, favoring the White group housing area to the detriment of the native Africans. The study of three apartheid cities – Cape Town, Johannesburg, and Windhoek (Namibia) – allowed the understanding of some of the tenets of apartheid city in place, each city

showing a tenet of the apartheid city model. Cape town and Johannesburg were chosen to show the Group Areas act by racially zoning of people; Windhoek was chosen to show how road infrastructure and natural features were used to racially segregate people. This brought the apartheid city as a tool to demolish social and spatial unity.

A conclusion may be reached from the theoretical part of the dissertation – that the apartheid city was indeed a tool to demolish because, from the examples provided, only a few reflected progresses in terms of modernization of South Africa at the time. Bringing infrastructure and equipment into the country was a good thing, but the implementation of racial segregation through the design of cities was a demolishing feature.

To answer the question *Is Vrede an apartheid city?* I undertook the journey of analyzing it through the tenets of the apartheid city model. Vrede was established in 1876, on the top of a hill, and later the Thembalihle township that is mostly occupied by the native Africans was established at its bottom. Holding its roots back to colonial times, this principle perpetuated segregation under the apartheid regime. The segregation of residential areas and distinct housing typologies, the implementation of the buffer zones, the role of natural features and of the main road accesses/connections between town and township, as well as the layout of the road network, the distances from outside to the CBD, and the location of infrastructure and equipment, were analyzed just to conclude about the huge differences and inequality in place within Vrede settlement as it embeds the tenets of the apartheid city model into its dual morphology.

Therefore, I can conclude that based on the literature review and the analysis I performed taking Vrede as the case study, indeed, Vrede was and still is an apartheid city. The model's implantation built some good through a number of modernizing features, namely infrastructure and equipment, both in terms of buildings and transport networks; but the apartheid city also proved to be a tool to demolish as it enforced and perpetuated racial segregation and inequality within the people.

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