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Institutional Responses to Mine Closure in the West Rand

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Declaration

I, Margaret Ann Kusambiza-Kiingi, declare that the thesis that I herewith submit for the doctoral degree qualification *Doctor of Philosophy, with specialisation in Development Studies* at the University of the Free State is my independent work, and that I have not previously submitted it for a qualification at another institution of higher education.

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Dedication

Acknowledgements

Abstract

This study investigated the social consequences of mine closures in the West Rand. The West Rand was once a rapidly growing area but has been severely affected by mine decline and closure, with its economy shrinking by 27% between 1996 and 2018. By using the concepts of new institutional economics (NIE), shrinking cities and mine closure, the study analysed the institutional environment (formal and informal rules) and institutional change in the West Rand. The study analysed decisions taken by key role players (communities, mining companies, government) in response to mine closures. Mining operations are well known for creating dependencies and complex networks, which disintegrate at the time of mine closure. Although mining has been a significant economic driver for over 100 years in South Africa, government only introduced the first firm mine closure regulations in 1991. Currently, South Africa has 6 100 abandoned mines, which are associated with numerous environmental and social problems; about 600 abandoned mines are in Gauteng province. While most studies focus on understanding and developing regulations to address the environmental impacts of mining globally, social aspects receive less attention. Consequently, mining companies and governments lack understanding of the real cost of mine closures and a holistic and sustainable way of closure. The study found that the West Rand is grappling with the complex phenomenon of mine closure and related power dynamics, which is exacerbated by high levels of poverty and unemployment. Critical drivers of effective collaboration between key role players, and crucial aspects of effective mine closure processes are weak or missing. Weak institutions prevail due to gaps in the regulations, a lack of capacity in government to enforce rules, and corrupt practices that have infiltrated societal behaviour. As noted by NIE, formal rules may change quickly, but informal rules change slowly. A culture of mistrust lingers postapartheid, and communities continue to bear the brunt of weak institutions. Social and labour plans are not the ideal mechanism for poor and declining environments such as the West Rand, necessitating a reconsideration of a model that is appropriate for the local context. The study emphasises the importance of participatory planning to address the negative consequences of urban shrinkage. The study recommends that the government should reinforce institutions to collaborate to achieve effective mine closures and strengthen its capacity to enforce mine closure rules and eliminate corruption. It is also essential to empower communities to participate in mine closure processes, articulate their interests, pick up the broken pieces, restore what has been damaged, hold duty bearers accountable and drive their development processes.

Keywords: new institutional economics, shrinking cities, mine closure, formal institutions, informal institutions, postapartheid rules, collaborative governance, spatial planning, post-mining.

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List of abbreviations

CSO	Civil society organisation
CSR	Corporate social responsibility
DMRE	Department of Mineral Resources and Energy
EMP	Environmental management programme
FPIC	Free and prior informed consent
GDP	Gross domestic product
ICMM	International Council on Mining & Metals
IDP	Integrated development plan
MPRDA	Minerals and Petroleum Resources Development Act
NEMA	National Environmental Management Act
NGO	Non-governmental organisation
NIE	New institutional economics
OIE	Old institutional economics
SLO	Social licence to operate
SLP	Social and labour plan
TCE	Transaction costs economics
TNC	Transnational corporations

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Mining has been a significant economic driver in South Africa for over 100 years, and contributed 7.53% to the gross domestic product (GDP) in 2022 (Minerals Council South Africa, 2023). Given the finite nature of mineral resources, mine closures are inevitable. Mine closures have implications for urban management and planning. Mine closure refers to the activities before and after the plant shuts down, including decommissioning and rehabilitating the mine site. Mining operations create dependencies and complex networks, which disintegrate at closure (Bainton & Holcombe, 2018a; Sesele, 2019). However, research on mine closures is limited, especially in developing countries, and mining companies and governments need to understand the actual closure costs better (Bainton & Holcombe, 2018a).

Knowledge of the physical aspects of mine closure is extensive and more developed than information on the social aspects (Stacey et al., 2010). Best practices recommend addressing not only the environmental impacts of closure, but also the social and economic impacts (Monosky & Keeling, 2021). Bainton and Holcombe (2018a, p. 1) emphasise the need to understand the social dimensions of mine closure, including “social and economic impacts, human rights, gender considerations, cultural heritage and human development”. The industry has to shift from a front-end approach to a back-end approach, and provide an holistic (social, economic, environmental) account of the consequences of mining operations at closure (Bainton & Holcombe, 2018a). The back-end approach requires stakeholders to include social considerations of mine closures in closure planning. The international experience shows the need for early closure planning and concrete involvement of relevant stakeholders when mines close (World Bank, 2002; 2018; Monosky & Keeling, 2021).

Over the past decades, South Africa has experienced numerous mine closures, because of depleted mineral resources, global competition, outdated infrastructure and inefficient operations (Casey, 2019; Centre for Development Support, 2006). Ackermann et al. (2018) observe that mining companies do not want to take responsibility for closure-related and rehabilitation costs. A media release by the Auditor-General in 2022 reported that the Department of Mineral Resources and Energy (DMRE) had 6 100 abandoned mines to rehabilitate, most of which had closed before 2002, from when mines were compelled to fully rehabilitate mine sites in South Africa. A holistic approach is required to understand the effects

of mine closures and develop appropriate responses to the phenomenon (Bainton & Holcombe, 2018a). The governance of the social aspects of mine closure remains challenging (Kung et al., 2020).

This study investigated the social consequences of mine closure in the West Rand (Gauteng province). The West Rand's economy shrank by 27% (real values) between 1996 and 2019 due to a decline in mining activities (West Rand District Municipality, 2021). This region faces significant environmental and social consequences linked to mining activities, such as polluted wetlands and river systems, social unrest and crime (Winde & Stoch, 2010; Langanki et al., 2014). The study uses the new institutional economics (NIE) theory and refers to the literature on shrinking cities to analyse how social, political, legal and economic institutions have changed in response to mine closures.

1.2 GLOBAL AND NATIONAL MINE CLOSURE TRENDS AND POLICIES

The mining industry can stimulate sustainable development. However, countries with large mining sectors should anticipate mine closures, given the finite nature of the mineral resources. Mine closures have important implications for urban management and planning (Garcia, 2008; Martinez-Fernandez et al., 2012). The benefits of mining are closely tied to the industry's devastating effects on the health and safety of mineworkers, the natural environment and communities close to the mines (Bainton & Holcombe, 2018b; Vivoda & Kemp, 2019). Aside from impacting the physical landscape and creating economic dependency, mines also have social consequences (Stacey et al., 2010). The social and environmental impacts of mining at the national and local levels are significant in Africa, with critics stating that the long-term adverse effects exceed short-term financial gains (Marais, 2013). Hence, globally, the industry is challenged to include closure planning throughout the mining project life cycle to account for the social, political and economic impacts of the mining operations (Bainton & Holcombe, 2018b; Garcia, 2008).

1.3 GLOBAL EXPERIENCES

Most mining companies and mine hosting communities are unprepared to manage with mine closure, and rebuilding local economies is difficult (Marais, 2013). Obtaining estimations of all socioeconomic, political, cultural and institutional benefits and costs of mining is essential, though difficult. Consequently, mine closures remain challenging (Bainton & Holcombe,

2018a). As McKenzie (2019) concludes, the greater the impact mining has on an economy, the greater the need to plan mine closures. Amidst ambiguous circumstances, the mining industry often finds ways of avoiding taking up the responsibilities related to mine closure (Bainton & Holcombe, 2018a; Kung et al., 2020).

Regulation of the mining sector, particularly environmental regulation, has generally increased. However, regulators must set rules for the social aspects of mine closure (Kung et al., 2020). Attention has turned to social and environmental concerns and good governance (World Bank, 2013). The intention is to increase benefits for local communities and improve governance at national and local levels. Marais (2013) refers to the World Bank's argument that mine closure processes will determine the mining industry's cost-benefit for a nation.

1.4 SOUTH AFRICAN EXPERIENCE

South Africa has experienced numerous mine closures during the past decades (Auditor-General, 2022; Centre for Development Support, 2006). Gold mining, for example, reached its peak in 1987, when it had 570 000 employees, which decreased to 470 000 employees in 1990, 170 000 in 2001, 144 799 in 2011 and 93 841 in 2022 (Cowling, 2023; Harington, et al., 2004; Marais & Sesele, 2019). Marais and De Lange (2020) observe that national policy and local strategy rarely anticipate mine closure or decline. Watson and Olalde (2019) contend that mine closure systems in South Africa have been ineffective and the consequences are manifested by (i) the number of abandoned mines and operations on extended care and maintenance; (ii) the on-selling of mines to less-well-resourced companies to close the mines; and (iii) an increase in illegal mining activities. Although South Africa's mining legislation generally aligns with international best practices, law enforcement has slackened. African governments generally lack the institutional capacity to hold mining companies to account (Marais, 2013).

Before the legislation of the Minerals Act of 1991, Act 50 of 1991, mining companies could abandon mines without any regard to rehabilitation (Swart, 2003). This behaviour of mining companies at closure had adverse social, health and environmental consequences for nearby communities. The 1991 legislation emphasised the importance of early planning, rehabilitation and economic diversification (Ackermann et al., 2018; Marais, 2013). For the first time, it required environmental rehabilitation and this demand was strengthened in 2002 with the Minerals and Petroleum Resources Development Act (MPRDA). Marais (2013) reports that the legislation was revised mainly to address mining rights disparities and the adverse

environmental and socioeconomic impacts of mining. The MPRDA expects mining companies to develop social and labour plans (SLPs) before they can obtain mining rights, to address the socioeconomic challenges of mining and mine closure. The intention was to enable municipalities and mining companies to integrate their plans. However, the outcomes have not met the intentions of the MPRDA, for various reasons.

Some mining companies opt to sell their mining assets when they are deemed unprofitable, thus “transferring mining rights to a lower-cost producer” (Watson & Olalde, 2019, p. 2). Mining companies also often relinquish their social responsibilities due to pressure to maximise profits within sustainable development principles (Kemp & Owen, 2018). The environment remains degraded long after the mine closes, with dust storms and low water quality, which cause health and safety concerns (Marais, 2013). This situation poses a problem mainly because the data required to corroborate what is happening in the affected communities is unavailable (Watson & Olalde, 2019).

While mining has contributed to uplifting the socioeconomic status of mining communities, mining can also deplete the livelihood assets of mining communities. Mining negatively affects their ability to cope and sustain their livelihoods, and often leave behind polluted areas, abandoned mines and ghost towns (Ackermann et al., 2018). The impacts of mine closure are more severe in developing countries, because of the affected communities’ limited social, economic and environmental options (Ackermann et al., 2018; Chaloping March, 2017).

1.5 PROBLEM STATEMENT

Mining communities depend on mining activities, and this dependency creates dependencies and complex networks. Mine closures have multidimensional impacts, including adversely affecting livelihood opportunities, local economies and the delivery of essential services (Pallagst et al., 2014; Weaver et al., 2017). Mine closure affects a city’s ability to generate income, attract investments and build a resilient tax base. Given the finite nature of the mineral resources, mine closures should be anticipated in urban management and planning processes (Marais & De Lange, 2020; Winde & Stoch, 2010). Despite improvements, the South African regulations mainly focus on environmental aspects. More attention should be given to the social and economic factors of mine closure (Marais, 2013; Swart, 2003). Mine closures present conflicting and dualistic institutional rules and unforeseen costs for the mining industry. The unforeseen costs and social implications pose challenges for the mining industry, governments

and the affected communities. Addressing the problem requires an holistic approach and clearly understanding the real cost of closure.

The central role of institutions (whether formal or informal) in economic processes are acknowledged by NIE (North, 1993; Williamson, 2000), which highlights the dimensions of transactions and the importance of transaction costs as an essential part of the total cost of an exchange. Furthermore, weak and missing institutions cause underdevelopment; scholars have identified two main categories of institutions essential for economic growth: those that promote trust and exchange, and those able to influence powerful actors, including the state, to protect people's rights (Shirley, 2005). When formal institutions are strong, they can delineate and enforce mining closure regulations and plans in the interest of the mining communities and protect investors' interests while holding them accountable. Strong informal institutions will manage power dynamics, hold formal institutions accountable for their commitments, build mutual trust and influence socioeconomic outcomes.

The literature on shrinking cities has lessons for urban planning, and specifically mine closure. Closure planning rules are vital and should aim to minimise adverse environmental and socioeconomic impacts from mining activities (Hollander & Ne'meth, 2011). However, pro-growth strategies are popular among politicians and policymakers. Decline is perceived as a stigma, as reflecting a distressed city and a deviation from the expected trajectory. The shrinking cities framework acknowledges the uniqueness of each city. It highlights the need to move from pursuing pro-growth strategies to adopting urban planning processes that build smaller, better living environments. Following the precepts of the shrinking cities concept, a mining city facing decline ought to anticipate mine closure, acknowledge its social impacts and emphasise citizen participation in planning, by adapting concepts such as smart decline and rightsizing.

Considering the background above, the following research questions were asked:

- i) How do mining companies manage mine closure, and how does that affect local decision-makers and communities?
- ii) How do formal and informal rules about closure affect mining companies, local decision-makers and communities?
- iii) To what degree do "closure transactions" consider the long-term socioeconomic cost of closure?

- iv) How do local decision-makers and communities respond to mine closure and economic change?
- v) Is there economic value in planning for decline?

1.6 AIM AND OBJECTIVES OF THE STUDY

The study aimed to understand the social impact of mine closures in the West Rand. The objectives were to:

- i) Explain the shrinking cities phenomenon, its impact on economies, and proposed responses;
- ii) Analyse the social aspects of mine closure and highlight opportunities and challenges;
- iii) Use NIE and shrinking cities frameworks to understand the institutional environment and institutional change;
- iv) Critically analyse the decisions that have been taken by the key role players (communities, mining companies, government) in response to mine closures within the NIE framework;
- v) Develop a conceptual and theoretical understanding of mining closure and mine closure planning with NIE; and
- vi) Draw lessons, locally and from around the globe, and make policy recommendations.

1.7 CONCEPTUALISATION AND THEORETICAL GROUNDING

This section will discuss the major concepts that underpin this study.

1.7.1 New institutional economics

NIE is a fast-growing interdisciplinary field that emerged in the last quarter of the 20th century. NIE combines a range of disciplines and acknowledges that institutions matter, are central to the functioning of economies, and can be analysed sufficiently at the level of transactions. According to North (1990, p. 3), “institutions are the rules of the game in a society or, more formally, the humanly devised constraints that shape human interaction”. These rules (institutions), together with how organisations enforce them (enforcement mechanisms), define

the way the game is played (North, 1990). Institutions influence organisational arrangements and may promote or impede economic growth.

Contributors to NIE have developed concepts and analytical tools, such as transaction costs, property rights, and contracts, and Williamson's (2000) analytical framework for social analysis, which explains societal and institutional problems and suggests solutions (Ankarloo, 2002; North, 1990; Williamson, 2000). The transaction costs concept is the main theoretical achievement of NIE (Ankarloo, 2002; Eggertsson, 2013). Transaction costs refer to the economic value of inputs associated with performing a transaction process and are costs incurred by the consumer not transferable to the seller of the product – it is “the cost of making exchanges” (Wallis & North, 1986, p. 95). NIE states that transactions are not costless, but an integral part of the costs of a transaction. Transaction costs include the cost of (i) searching for information, (ii) negotiating, (iii) contracting, (iv) monitoring agreements, (v) enforcing agreements, and (vi) protecting property rights (Eggertsson, 1990).

Property rights in the NIE context refer to “sanctioned behavioural relations among economic agents in the use of valuable resources” (Libecap, 1999, p. 5). Property rights are formal and informal social institutions that define or delimit access to privileges (Kim & Mahoney, 2002), and are susceptible to opportunistic behaviour. Property rights determine incentives, shape innovation and technology and influence economic production and exchange (Mello, 2016). Contracts are also analytical tools and a way of coordinating mutual agreements and controlling hazards that are bound to happen in transactions (Brousseau, 2008). NIE studies different contractual arrangements and why some are preferable to others. NIE emphasises the cost of these contractual agreements, noting that they are costly to design and manage (Brousseau, 2008). At the core of any contractual arrangement is the issue of transaction costs, which ultimately determines the suitability of contractual agreements.

Each society has a unique institutional environment, shaped by all its formal and informal rules (embedded in society's values), which influence how economic transactions are carried out. It is, therefore, possible to understand and anticipate the behaviours of the different actors by studying different institutional environments (Groenewegen et al., 2010).

NIE argues that institutions matter, play a central role in the economic processes and determine both the rate and direction of economic growth (North, 1993). Studies have shown that weak and missing institutions are often the root cause of underdevelopment. Economies need institutions capable of explaining the complex dynamics of economic change and informing

development policy, which entails an analysis of the polity, because it determines and enforces the formal rules (North, 1993). North (1993) notes that most NIE studies focus on developed economies and have limited applicability in the Global South. Thus, it is essential to build empirical and theoretical knowledge on NIE and adapt the concept to circumstances in the Global South.

1.7.2 Shrinking cities

The shrinking city phenomenon manifests as a persistent decline in the urban population (Pallagst et al., 2009). Shrinkage is complex and multidimensional, is happening globally and in multiple ways, is caused by various factors and follows no universal pattern (Pallagst et al., 2009; Pallagst et al., 2014). The phenomenon can affect cities, parts of cities or entire metropolises and has adverse economic and social impacts (Pallagst et al., 2009). Shrinkage challenges urban planners and policymakers, who are forced to abandon traditional pro-growth development paths and adopt creative urban planning and management strategies.

Urban shrinkage leads to economic decline and the loss of employment opportunities, the population moving out of the city and a shift in the affected economy from predominantly manufacturing or mining centres to service provision (Haase et al., 2014). Urban shrinkage often relates to the movement of larger numbers out of urban centres caused by suburbanisation and urban sprawl. The decline adversely affects the city's ability to generate income, attract investments and reduce its tax base. Researchers use words such as decline, decay, blight, abandonment, disurbanisation and urban crisis (Haase et al., 2014). Attaching stigma to a shrinking city exacerbates the situation, thereby making it difficult to attract new investments, thus, intensifying the decline process.

Shrinkage in mining cities is mainly a result of mineral resources being exhausted or no longer viable economically, because of fluctuations in global resource prices (Martinez-Fernandez & Wu, 2007). Mining cities require specific solutions. Firstly, mining cities depend on non-renewable resources. Their decline phase can be predicted, which gives planners and policymakers time to plan. Secondly, they are often located at the periphery of or far from large metropolitan areas, where it is difficult to find other economic activities. Thirdly, mining is linked to global markets and is vulnerable to price fluctuations and decisions taken by multinational companies. Mining also depends on technological advancement, which requires increasing capital-intensive operations and reducing the workforce. In the fourth place, though mining companies interact with ongoing technological changes and stay connected globally,

the transfer of such knowledge and innovation to mining communities is limited. Finally, when a mine closes, it leaves behind a degraded natural environment and long-lasting harmful effects on the community's health. Thus, cleanup and renewal processes become necessary.

Shrinkage in urban cities requires urban planners and decision-makers to find appropriate urban planning and development approaches. Cities affected by decline around the world have embraced smart decline and rightsizing concepts, which they adapt to suit local circumstances, instead of focusing on pro-growth strategies. These concepts value decline and participatory processes and seek to make the quality of life of people remaining behind better (Weaver et al., 2017). Smart decline encourages compact land uses and mixed building types, while the rightsizing model aims to convert vacant and abandoned properties into 'green' infrastructure and land use (Schilling & Logan, 2008). The model also considers the unique disposition of neighbourhoods and power dynamics that influence decision-making (Hollander & Ne'meth, 2011). It values local knowledge and views and applies bottom-up democratic processes (Weaver et al., 2017). The planning processes emphasise the importance of social justice (Hollander & Ne'meth, 2011). In this study, I linked NIE and shrinking cities in two main ways: I viewed mine closure as institutional change and will analyse the relationships between formal and informal rules created by mine closure.

1.7.3 Mine closure

Mine closure is a complex global phenomenon that has serious implications for urban management and planning (Garcia, 2008; Martinez-Fernandez et al., 2012). From its inception, mining creates dependencies and while communities close to mining sites reap some benefits from mining, they also bear the brunt of its adverse environmental and social impacts (Bainton & Holcombe, 2018a; Vivoda & Kemp, 2019). Mining cities that experience mine closure, particularly those heavily dependent on mining, are affected economically, and face persistent population loss and employment decline. Such a decline disrupts communities (Martinez-Fernandez et al., 2012). While the environmental impacts can be clearly understood, costed, regulated and closely monitored, the social impacts are poorly understood, under-researched, underestimated and often unregulated. Consequently, significant sections of the mining industry use this ambiguity to abandon mines and avoid mine closure responsibilities (Bainton & Holcombe, 2018a; Kung et al., 2020). Mining closure is inevitable and complex, and the industry is challenged globally to include closure planning throughout the mining project life

cycle to explain the social, political, and economic impacts of mining activities (Bainton & Holcombe, 2018a; Garcia, 2008).

1.7.4 Conceptual and theoretical framework

The research used principles from NIE and shrinking cities theoretical frameworks to describe and analyse mine closure in the West Rand. NIE analytical tools provide an understanding of the interaction between people and institutions in the West Rand and the choice of modes of governance of economic transactions. NIE analytical tools help understand the context and contractual obligations in the West Rand and how these have responded to mine closures since 1991. In contrast, the shrinking cities theoretical framework provided information on strategies that need to adapt to involve smart shrinking. The study suggests actions and support required for credible contracting and investments.

The information generated by the research was used to develop a conceptual and theoretical understanding of mining closure and mine closure planning. Four areas of study were undertaken, as listed below and illustrated in Figure 1.1:

1. NIE theories describing tools for social analysis;
2. Shrinking cities theories, explaining interpretations of causes, impacts and responses to this global phenomenon;
3. Mine closures, emphasising the social aspects; and
4. A case study on the West Rand, including an analysis of the institutional environment and arrangements.

Figure 1.1 illustrates the relationships between the critical areas of the research.

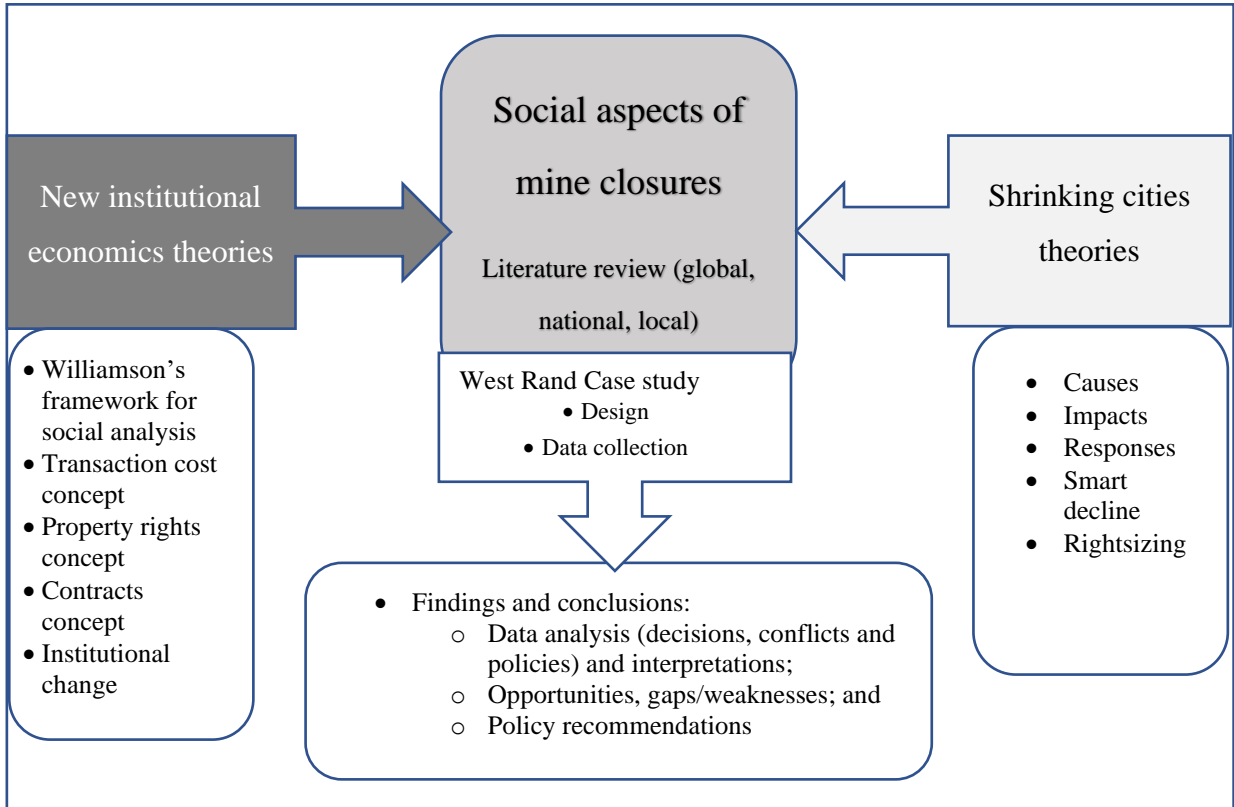


Figure 1.1: Conceptual framework

Source: Author's compilation (2023)

1.8 THE CASE STUDY AREA

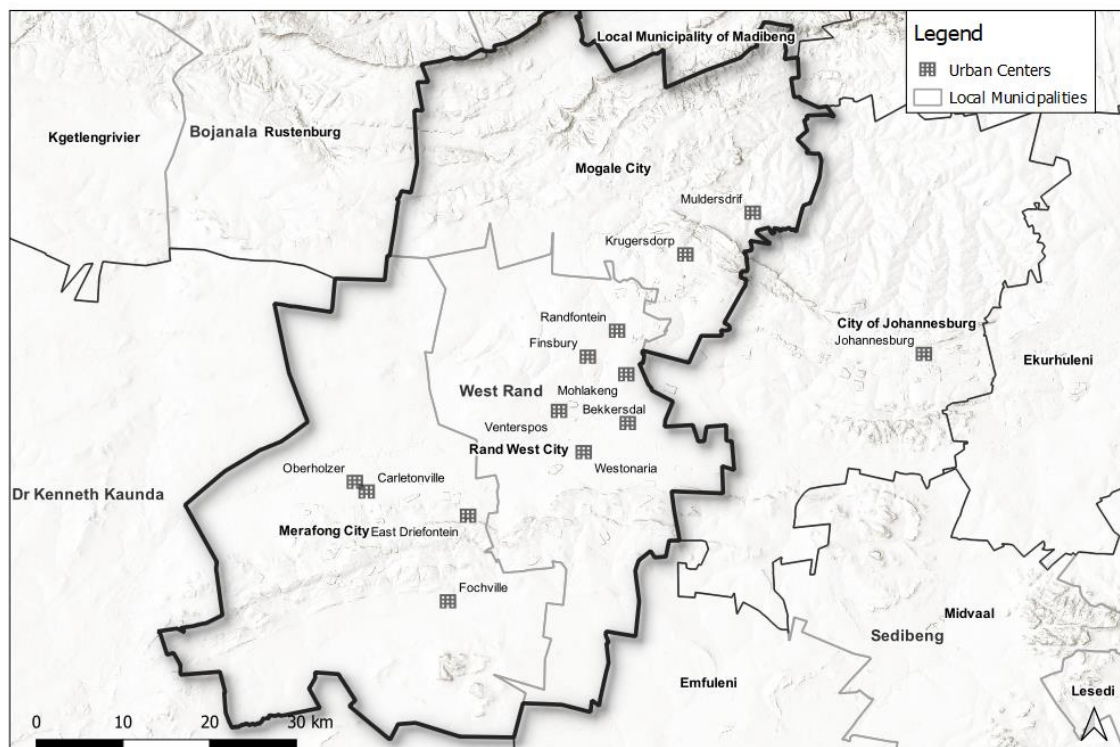


Figure 1.2: West Rand District map

Source: Map drawn by Dr Herman Booysen (2023)

The West Rand District Municipality (Figure 1.2) is found in the west of Gauteng province. It is a category C municipality with three local municipalities: Merafong, Mogale and Rand West Cities. The mines and government constructed urban centres around mines, creating a unique urban mining situation for the West Rand and South Africa as most mines are often located in remote areas (Van Assche et al., 2024). This arrangement has greatly influenced human settlement patterns in the West Rand. The seat of the district municipality is Randfontein. Bojanala Platinum borders the West Rand to the north-west, the City of Tshwane to the north-east, the City of Johannesburg to the east, Sedibeng to the south-east, and Dr Kenneth Kaunda to the south-west (South Africa, 2018). It is close to the centre of economic activity in the Gauteng province and is crossed by the N12 and N14 national roads. It is mainly a mining and residential area (such as Krugersdorp) for people that work in Johannesburg. The West Rand District contributes the least to the Gauteng province GDP of all the regions. It is home to the Cradle of Humankind, which is found in Mogale City and Merafong City and is recognised as a World Heritage Site (South Africa, 2018).

Gold mining in the West Rand dates back more than 120 years and continues to be the most important source of income, directly or indirectly, making mine closure a significant concern for the area (Winde & Stoch, 2010). According to Langanki et al. (2014), mining in the Witwatersrand has been extended multiple times by the adoption of new technologies. Rising labour costs and the low-grade of the remaining gold reefs have made the cost of mining very high and economically unfeasible. The area faces significant environmental and social impacts, with wetlands and river systems being heavily polluted (Langanki et al., 2014; Winde & Stoch, 2010). West Rand also faces high unemployment due to mine closures, with a surplus of low-skilled workers who need help to find employment in the remaining industries and economic sectors. Langanki et al. (2014) refer to the enormous damage left behind by mining in the West Rand and note that a holistic and sustainable way to address the problems remains elusive.

1.9 METHODOLOGY

This section will describe the study design, data collection methods, analysis, and ethical considerations relating to the study.

1.9.1 Research methods

Regarding the paradigm, critical realism served as the theoretical foundation for the research. Critical realism is a paradigm that lies between positivism (fixed laws and explanations) and postmodernism (minimal fixed explanations) (Vincent & O'Mahoney, 2016). Researchers often use critical realism as a metatheory for studies. Critical realism distinguishes between the real world (ontological statements) and the interpretation of the world (epistemological statements) (Sousa, 2010). This study did the same by distinguishing between mine closure (the real world or what exists) and different understandings or knowledge of mine closure (the epistemological). A further point of interest is that critical realism emphasises causation. Critical realism also fits in well with NIE, which emphasises rules and embeddedness.

The research approach was sequential mixed methods. Mixed methods research is a research paradigm that combines at least one element of qualitative and one quantitative research component “for the broad purposes of breadth and depth of understanding and corroboration” (Johnson et al., 2007, p. 123). This approach was used with the intention to strengthen the research study and its conclusions. The research components were implemented sequentially,

and the information gathered using one method was useful in developing or informing the other method.

The sequential mixed methods approach comprised two phases (refer to Figure 1.3). The first phase had two parts, which were run concurrently. Part 1 of the first phase (Phase 1A) gathered statistical information on the local economy, demographics and the scale of mine closure. This data was available from Global Insight, Statistics South Africa, South African Revenue Services and government departments. This statistical information illuminated the reality of mine closure and its economic and demographic consequences and provided the background for Phase 2.

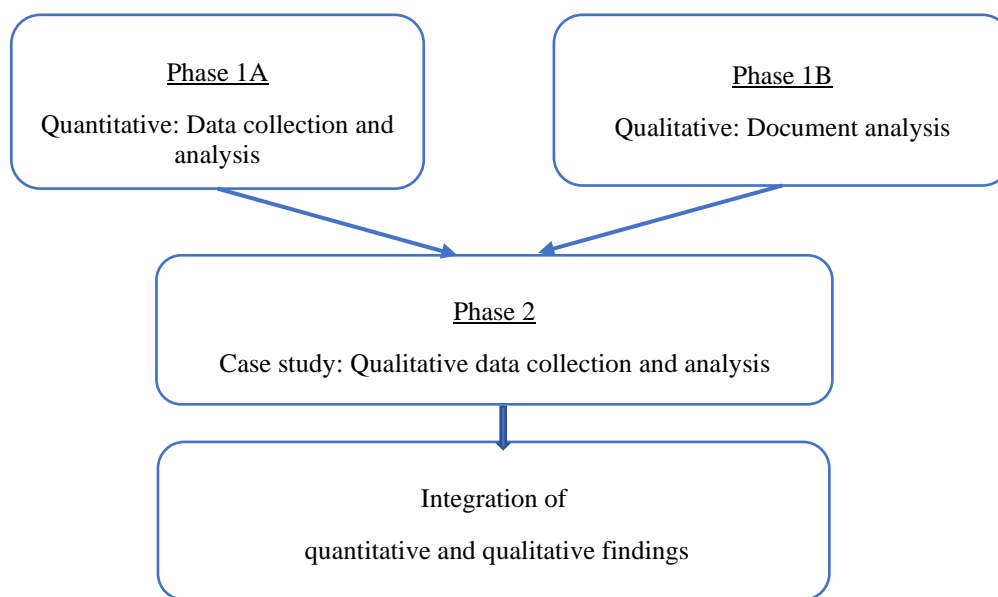


Figure 1.3: Sequential mixed method of data collection

Source: Researcher's compilation (2023)

The second part of Phase 1 (Phase 1B) of the mixed methods approach entailed a document analysis of policies, legislation, local planning documents, mayoral speeches and newspaper articles. Document analysis entails examining and interpreting data to elicit meaning and develop empirical knowledge relevant to the research problem (Bowen, 2009). Documents are helpful, because they can provide data on the context and historical roots of specific issues, suggest useful questions that ought to be asked and situations that need observing in the research, offering valuable additions to the knowledge base, providing means of tracking change and means for verifying findings or corroborating evidence from other sources (Bowen,

2009). This assessment evaluated mine closure activities and responses as reflected in planning documents and by political and community leaders since the early 1990s. Combined with the statistical data from Phase 1A, the document analysis provided the background for conducting semistructured interviews.

The second phase (Phase 2) was data collection and analysis for the West Rand case study. The semistructured interviews in the West Rand followed the completion of Phases 1A and 1B. Information from Phases 1A and 1B helped me to prepare questions beforehand to guide the conversations and keep the respondents on topic. The questions were open-ended and flexible, to encourage a two-way conversation with the respondents and allow them to provide more information when necessary. Interviews can enhance what other studies have noted regarding a particular social life or phenomenon (Ishak & Bakar, 2014). These interviews were key-informant interviews with representatives of government and mining companies and civil society organisation officials.

In addition to the in-depth interviews, I facilitated three civil society organisation (CSO) focus group discussions with 44 participants – one group in each of the three local municipalities. These focus group discussions enabled in-depth interaction by participants from the same local municipality. The discussions helped me to understand the local experiences, concerns, and challenges better.

The study used a descriptive case study design. Research using a case study involves exploring complex issues, especially when understanding human and social interactions is fundamental to the research topic (Harrison et al., 2017; Zainal, 2007). Harrison et al. (2017) argue that the main goal of case study research is to enable an in-depth analysis of a matter in question within its context, in order to understand the participants' views. Like other types of qualitative research, a case study enables the researcher to get close to the participants in their natural setting. It allows the co-construction of data through observations, interviews, focus groups, and document analysis. Since the researcher's views and interpretations become part of the research and, therefore, are tied to all aspects of the study, subjectivity is acknowledged and managed using a reflexive stance (Harrison et al., 2017). Reflexivity reduces the chances of the researcher applying own biases into the research.

1.9.2 Sampling

I approached the West Rand District, local municipalities, mining companies, and non-governmental organisation (NGOs) working with communities in the West Rand. After identifying the relevant officials, I introduced myself and the research project (see Appendix A) and arranged dates for the in-depth interviews. I interviewed 11 key informants.

With the help of a local NGO, I identified CSOs working in each of the three local municipalities. The NGO also helped me with the logistics of the fieldwork. A letter introducing me as the researcher and the project was sent to the CSOs, they were invited to a focus group discussion and their participation requested. In total 44 participants (about 15 per workshop) attended the focus group discussions. I also attended a conference on mine closure hosted by the Bench Marks Foundation, held on 18–19 October 2022, with speakers from mining-affected communities, activists, and other stakeholders.

1.9.3 Data collection

1.9.3.1 In-depth interviews

Information about the project and a consent form were sent to each key informant before the interview (see appendices). All key informants provided written consent before the interview. The interview started by the researcher explaining the research project and the nature of their participation; I stated that the interviews were to be recorded, that their information was confidential, and that they could withdraw from the interview without giving a reason. I assured them it would not be possible to connect them to the information they provided.

Data were collected through semistructured, in-depth interviews with 11 key informants¹, after which saturation had been achieved. According to Guest et al. (2020), proceeding after saturation is usually unnecessary, as similar responses are likely to be repeated. The method used to collect data was guided by predetermined questions based on the study's framework, and aimed at understanding each respondent's perceptions of mine closure in the West Rand. All key informants opted for online interviews, which lasted about 60 minutes. Interviews took place from April 2022 to October 2022. All interviews were recorded, transcribed, saved and stored after each interview.

¹ Referred to as respondents (R) in the study.

1.9.3.2 Focus group discussions

Focus group participants² also received information about the study before the CSO focus group discussion workshop. Together with the NGO that assisted me with the fieldwork, we found suitable workshop dates and venues. The workshops were held on 19 May 2022, 2 June 2022, and 1 September 2022. COVID-19 protocols (face masks, sanitising, and maintaining the prescribed social distance) were observed at the workshops. The workshops lasted about three hours each. At the beginning of each workshop, I explained the study information (benefits of the study, ethical approval, confidentiality, the nature of their participation, recording of the discussions, and freedom to withdraw from the interview without giving a reason). I requested participants who understood the study's objectives and were willing to participate in the discussions to sign the consent form and attendance register. I presented the workshop agenda (Appendix D) to the participants to guide the discussions. Participants were free to express themselves in a language of their choice, with some participants volunteering to interpret, if necessary. All participants could read and write, and only a few used a local language. All three workshops were recorded, transcribed, and the transcriptions saved and stored after each workshop.

1.9.4 Data analysis

The statistical data mapped the nature and scale of mine closure in line with various institutions (rules and laws) in the West Rand since 1990. Data were transcribed into written form and analyses made using emerging themes, as recommended by Braun and Clarke (2006). Thematic analysis is a flexible qualitative research method that helps researchers to obtain rich and detailed information. Thematic analysis was used to process the structured interviews, since few interviews were undertaken. Data were broken into smaller parts and numbered for easy reference. The thematic data analysis method was helpful in understanding the participants' perceptions of mine closure and changes in rules since 1990.

1.10 ETHICAL CONSIDERATIONS

The study information and consent form documents clearly outlined the ethical considerations. Using the two documents, I explained the purpose of the study to all key informants and focus group participants and responded to questions raised – I did this at the beginning of each

² Referred to as participants in the study.

interview and workshop. I sought their consent for participation, and requested them to sign the consent forms before the sessions. I maintained the confidentiality of participants' records and other sensitive information, especially during the writeup processes. I paid specific attention to the enquiry methods and allowed time for all participants to respond to the questions. I also informed the key informants and participants that the research material would be used in the future to publish papers and do presentations at seminars, conferences and similar events, as may be identified. I adhered to the study's ethical and legal regulations as prescribed by the University of the Free State.

1.11 LIMITATIONS OF THE STUDY

The study targeted officials from government and representatives of mining companies and CSOs who did mine-related work in the West Rand, and did not include other stakeholders, for example, business owners. Thus, the knowledge generated only reflects a social account represented by some of those working in the West Rand.

The identification of the focus group discussion participants relied mainly on a list of CSOs provided by the NGO that assisted me with the fieldwork, their availability and their acceptance of the invitation to participate in the study. To ensure quality deliberations, each workshop aimed to have between six and 15 participants – limiting the number of participants who could attend. In total, 44 participants attended the focus group discussions, which is a small sample. The main concerns raised by the focus groups were similar, although it would be helpful to find out whether there are communities in the West Rand with experiences that differ from those reported in this study.

1.12 CHAPTER OUTLINE OF THE STUDY

The thesis comprises eight chapters. This section overviews the chapters and how they are aligned to the research objectives.

Chapter 2 (*New Institutional Economics: A Theoretical Framework*) will introduce the NIE theory and the role of institutions (formal and informal) and their (institutions) enforcement. The key NIE concepts and analytical tools will be explained, along with the role of institutions in shaping human behaviour, determining the nature of exchanges in society and the nature and rate of economic growth. The NIE theory will be discussed as a tool for social analysis, and how it can be used to explain the institutional environment in different contexts. The theories

of institutional change will be explained, and the relationship between NIE and development will be provided, together with the shortcomings of NIE.

Chapter 3 (*Shrinking Cities: A Theoretical Framework*) will analyse the literature on shrinking cities from a global perspective. The characteristics of shrinking cities, as well as causes of and responses to shrinkage, will be analysed. Shrinkage will be explained as a complex phenomenon and a significant challenge for urban planners and policymakers, and I will emphasise the need for embracing and planning for decline using bottom-up, inclusive, participatory processes. Smart decline and rightsizing strategies for responding to shrinkage will also be discussed. Shrinkage is reflected in the NIE context, and the importance of aligning formal and informal institutions will be noted.

Chapter 4 (*Mine Closure: A Literature Review*) will analyse the literature on mine closure from global and South African perspectives. Mine closure will be explained as a complex global phenomenon. The complexities of mine closure will be highlighted, as will social aspects of closure, social actors, trends, regulations, and challenges of closure. Mine closure regulation will be discussed, and the main obstacles to closure in South Africa will be highlighted. Mine decline and closure will be discussed within the NIE framework, and rules that play a critical role in enabling the cooperation of people and organisations will be provided. Mine closure will be viewed as an economic change resulting from and leading to institutional change.

Chapter 5 (*Mine Decline and Closure in The West Rand*) uses document and data analyses to investigate the nature and scale of mine decline in the West Rand. The chapter will discuss the socioeconomic consequences, effects on the local economy, unemployment, informal sector employment, informal settlements, crime levels, municipal finances, and demographic changes.

Chapter 6 (*Institutional Responses to Mine Closure: The Local Economy*) will present the empirical work done by the study, and will analyse the data of the in-depth interviews and focus group discussions. The chapter will reflect on the economic history of the West Rand before mine closure regulation was introduced, how the rules have changed, and discuss the views on how mine closure rules have affected the local economy. Views on what should be done to address the negative consequences of mine decline and closure in the West Rand will be presented.

Chapter 7 (*Institutional Responses to Mine Closure: Settlements and Decline Planning*) is the second chapter that will present the empirical work of the study. Chapter 7 will begin by

reflecting on the nature of settlements before mine closure regulation was introduced (1991); rule changes will then be presented, and participants' views on how settlement patterns have responded to mine decline and closure over the past three decades in the West Rand will be presented.

Chapter 8 (*Key Findings, Recommendations, and Future Research*), the final chapter of the study, will reflect on the chapters before presenting the main findings, recommendations, and areas for future research.

CHAPTER 2: NEW INSTITUTIONAL ECONOMICS: A THEORETICAL FRAMEWORK

2.1 INTRODUCTION

Classical economics was the first school of economic theory. It dominated the profession in the 19th century by focusing on understanding wealth and the laws governing the distribution of wealth (Vroey, 1975). According to Vroey (1975), an increase in wealth resulted from the accumulation of capital, which was the primary vehicle for progress. Classical economists defined capital to include machinery, raw materials and labour. They believed that the cost of production depended on the cost of materials and labour. Classical economists were mainly concerned with explaining the system they worked in and assisting policymakers to increase the wealth of nations (Peters et al., 2002; Vroey, 1975). Classical economics advocated for the freedom of the market and believed in the “invisible hand” of the market to allocate resources efficiently, coordinate economic activities and generate economic development (Hudea, 2015). In the classical economics model, individuals are driven by self-interest, and scarcity and production costs determine value; the economy self-adjusts to return to full employment (Hudea, 2015). Proponents of this theory identified three social classes: landlords, workers, and capitalists, receiving revenue as rent, wages and profits respectively. Vroey (1975) observes that the relationship between the social classes was at the center of economic analysis, and capitalists were assigned the lead role. Though recognised as essential for production processes, workers’ and landlords’ roles were less critical for decision-making.

During the last quarter of the 19th century, economists such as David Ricardo criticised classical economic theory. This criticism led to a paradigm shift in economic theory and the emergence of neoclassical economics, a term introduced by Thorstein Veblen in 1900. Neoclassical economists shifted the focus away from economic growth, to efficiency (Peters et al., 2002; Vroey, 1975), and from capital to price. The perceived value of goods was determined by the consumer’s desires (Hudea, 2015; Vroey, 1975). Neoclassical economists were no longer interested in helping policymakers, but were interested in abstract research and finding a general economic theory. The significant achievements in natural science disciplines in the 19th century, such as evolution in the biological domain, influenced this school of thought. According to Vroey (1975), capitalists were placed at the same level as labourers and landowners – defined merely as owners of capital stock, and different from entrepreneurs.

Neoclassical economists removed the use of classes in economic analysis and introduced new analytical tools and scientific aspects.

Alfred Marshall is a founder of neoclassical economics; he introduced the concepts of supply and demand interaction (market diagram) and marginal analysis (Boerger, 2016). Neoclassical economic theory dominates current economics education and research. It assumes that resources are scarce, individuals are rational, have full knowledge of their preferences, and aim to maximise utilities within their budget constraints (Boerger, 2016; Vroey, 1975). Additionally, neoclassical economics assumes that individuals can freely exchange scarce resources in a competitive market (Boerger, 2016; Mayhew, 2018). The role of the state is to formulate and protect rights. With this model, supply and demand drive the production, pricing, and consumption of goods and services. Thus, neoclassical economics reduces economic problems to the “optimum allocation of scarce resources” (Pasinetti, 2020, p. 2). Neoclassical economists predominantly use mathematical models to analyse economic systems (Boerger, 2016).

The neoclassical model sought to make economics a science, and overlooked the importance of institutions, which were viewed as irrational and dependent on circumstances (Chang & Andreoni, 2019). Some economists questioned whether the market was an efficient resource allocation (Vatn, 2017). Thorstein Veblen pointed out that individuals are empowered or constrained by institutions. This notion laid the foundation for institutionalism, which emerged early in the 20th century to critique mainstream orthodox assumptions. Institutionalism, also known as old institutional economics (OIE), is a school of thought associated with Thorstein Veblen, John R. Commons and Wesley Mitchell (Williamson, 1993). Consequently, institutions became a central topic of analysis for economists (Hodgson, 2009).

The theory of NIE is located in a fast-growing interdisciplinary field that emerged in the last quarter of the 20th century, and originated from two articles by Ronald Coase, “The Nature of the Firm” (1937), and the “Problem of Social Costs” (1960) (Ménard & Shirley, 2012). Oliver Williamson introduced the term NIE to highlight the differences between new economic ideas and ‘old’ institutional economics (Hodgson, 1998; Obinska-Wajda, 2016). Hodgson (2009) explains that Williamson deliberately used the adjective ‘old’ to separate the newer approach from the old institutionalism.

This chapter will start by describing what NIE is, its origins, and, briefly, how it has evolved over the years, by highlighting its key concepts and how it differs from neoclassical and OIE.³ In the language of NIE, the word ‘institution’ refers to the rules of the ‘social game’ and not to organisations such as government agencies, civil society organisations, mining companies, schools, hospitals, or similar businesses (Eggertsson, 2013; Roland, 2004). The chapter will assess the definition of institution in the NIE context and explain why institutional analysis is relevant for studying economic systems. The chapter will, furthermore, explain the NIE concepts used in this study and provide an overview of the NIE field from a development and reform perspective. Institutional change theories will also be discussed. Finally, the chapter will turn to a discussion of the shortcomings of NIE.

2.2 WHAT ARE INSTITUTIONS?

The term institution has multiple definitions, which reflects the many notions involved in institutional economics. John Commons, one of the founders of OIE, defined an institution as “collective action in control, liberation and expansion of individual action” (Commons, 1931, p. 648). Commons' definition shifted focus away from price and output, to transaction as the basic unit of analysis (Williamson, 1995). From the Commons perspective, collective action includes actions by different groups, both organised and unorganised. Examples include family, business, corporates, organised labour and the state. In OIE, collective actions have conflicts of interest and require the rules of conduct being stated. In addition, the scarcity of resources influences collective actions, which various sanctions can enforce. These actions aim to determine the degree of control, liberation and flexibility of individual actions (Commons, 1931). Rules indicate what individuals can, may, must, or cannot do. The rules are different for each society and change continuously.

2.2.1 ‘Rules of the game’

Most people who write about NIE define institutions as the ‘rules of a social game’ in which individuals and their organisations are the players (Eggertsson, 2013). According to Douglas North (1990, p. 3), “Institutions are the ‘rules of the game’ in a society or, more formally, are the humanly devised constraints that shape human interaction”. Institutions (rules), together

³ Also referred to as original institutional economics, to avoid prejudices about an ‘out of fashion institutionalism’ and a ‘new’ or ‘modern’ one (Parada, 2005).

with the way organisations enforce them (enforcement mechanisms), define how the game is played (North, 1990). North's perspective of 'institutions-as-rules', also referred to as a functional approach (Roland, 2004), explains institutions based on their functions in society and emphasises that rules are designed to prescribe behaviour and reflect the needs of their creators (Greif & Kingston, 2011). The enforcement of rules is considered separately from what the rules stipulate (Coccia, 2018). According to this approach, some rules are exogenous, such as legal and social norms – set outside the transaction domain. Other rules, such as contracts and preferred organising methods, are endogenous and determined within the transaction domain (Aoki, 2006).

2.2.2 'Institutions-as-equilibria'

Another perspective recognised by scholars is the 'institutions-as-equilibria' approach (Greif & Kingston, 2011). Greif, for example, defines an institution as "a system of institutional elements, particularly beliefs, norms, and expectations that generate regularity of behaviour in a social situation" (cited in Greif & Kingston, 2011, p. 26). Aoki (2006, p. 7) refers to an institution as "salient, self-sustaining features of social interactions" that people hold about the expected behaviour of a society. In other words, in a society, individuals influence each other's behaviour, which leads to rational behaviour in a social situation. This approach focuses on the motivation (incentive) behind the self-regulation, and rules coordinate the expected behaviour. Ultimately, it is not the rules, but the behaviour or anticipated behaviour of others that induce people to follow a particular way of behaving (Greif & Kingston, 2011). Greif and Kingston (2011) note that the two approaches complement each other and they seek to explain the social factors that determine the regular or predictable patterns of human behaviour.

2.2.3 Create certainties in human interactions

Human interactions are full of uncertainties, but institutions make it possible for transactions to take place. Societies need rules and regulations to

"maintain a sense of fair play; to prevent disastrous conflicts; keep greed, predatory and other unsavoury human instincts in check; minimize socially undesirable consequences; and generally to ensure that players and referees abide by certain accepted standards of moral conduct and good behaviour" (Myint, 2000, p. 37).

Transactions result in the transfer of ownership, and the exchange of property rights and duties as agreed (contracts) by the parties involved and as provided for by the rules set by society.

Aoki (2006) emphasises that a rule must be implementable and enforceable (sustainable) to prevail as an institution. Although unenforceable rules do not qualify to become institutions, bribing corrupt law enforcers can become common in society, thereby creating an institution of bribery (Aoki, 2006). For instance, when corruption is prevalent in a society, there will be attempts to frustrate the efforts of honest law enforcers. The more complexities and uncertainties (incomplete information) are in any environment (social, economic, political, cultural), the more necessary it is to develop regularised patterns of human interactions in society (North, 1990). Furthermore, when societies are economically or politically diverse, they find it difficult to obtain a simple majority and, therefore, require institutional arrangements to facilitate complex forms of exchange. Rules facilitate political and economic exchanges in numerous ways and between different actors, making a variety of transactions less risky and predictable (North, 1990).

2.2.4 Instruments to control the environment

In later work, North refers to institutions as “scaffolds that humans erect” (North, 2005, p. 48) to determine human interactions. These scaffolds consist of physical and human capital to control the environment. In this context, physical capital refers to materials such as tools, techniques and instruments, while human capital is the knowledge people have accumulated based on their beliefs. Vatn (2017) describes institutions as safeguards, private or public, that are in place to protect actors and settle disputes when they arise. Institutions are also tools decision-makers use to distribute or redistribute wealth with taxes and social allowances (Ferrini, 2012; Vatn, 2017). In addition to serving as constraints, institutions are essential tools for social change. Institutions are transformative instruments that either support economic development or undermine development efforts (Mkandawire, 2009).

2.2.5 Determinant of incentives

Meador and Skerrat (2017) emphasise the central role of institutions in providing norms for all parties participating in a development programme (community members and development practitioners). Acemoglu and Robinson (2008) explain that institutions are a crucial determinant of incentives for society to grow its human and social capital and advance its technology, which highlights their significant impact effect on economic outcomes, such as the rate of economic growth, and the poverty and inequality levels. In any society, therefore, economic institutions influence the incentives of key economic actors, determining how

production is organised, resources are distributed, and the preferred capital (physical, human and technology) investments.

2.2.6 Formal, informal, written and unwritten institutions

Menard and Shirley (2008, p. 1) contribute to the aspect of informal rules by describing institutions as the “written and unwritten rules, norms, and constraints that humans devise to reduce uncertainty and control their environment” and categorise them into three groups:

- i) “Written rules and agreements that govern contractual relations and corporate governance;
- ii) Constitutions, laws, and rules that govern politics, government, finance, and society more broadly; and
- iii) Unwritten codes of conduct, norms of behaviour, and beliefs.”

Hodgson (2009) explains that unwritten codes refer to informal institutions, such as social obligations, customs, and norms. Informal institutions depend on human beliefs, shape human choices and determine economic activities in a society (North, 2005). Informal rules are powerful in any society and can influence formal institutions, power relations, mutual trust and the allocation and use of resources. Gryzmala-Busse (2010) argues that informal institutions can “replace, undermine, and reinforce formal institutions irrespective of the latter’s strength”. Also, informal rules can influence preferences when shaping development policies and strategies (formal rules) (Gryzmala-Busse, 2010, Williamson, 2000). North (1990) also argues that formal institutions take on their character from informal institutions. Formal institutions include the judiciary, bureaucracy, rules governing property rights, contracts and contracts enforcement, financial markets, taxation and revenue collection by the state. Other institutions that shape economic activities in an economy include currency, language, etiquette and measuring systems. For example, the social norms regarding gender, class and caste determine participation and representation in political processes and rules that govern economic exchange (Ferrini, 2012).

2.2.7 Motivation behind institutions

North (1993) notes that the motive behind the formation of institutions is not to provide social efficiency or direct behaviour of people in the right direction, but rather to protect and serve the interests of dominant groups that can lobby and create new rules (North, 1993; Wegerich,

2001). Thus, to achieve their objectives, organisations (game players) may invest resources in either changing the game's rules or maintaining the status quo. Wegerich (2001, p. 23) observes that institutions “reflect and reinforce power relations” and can be exploited by elites. Therefore, institutions and the way they are enforced create controls and incentives that influence the decision-makers’ behaviour (Eggertsson, 2013). Institutions are a complex mix of formal and informal controls and change slowly, particularly the norms of behaviour (Eggertsson, 2013; North, 2005; Pereira & Lopes, 2018, Williamson, 2000), Greif (2006, p. 10) considers institutions to be “immutable cultural features of societies that determine behaviour” – surpassing the individuals involved in an exchange.

Each society has a unique institutional environment, shaped by all its formal and informal rules (embedded in society’s values), and influencing how economic transactions are carried out. Williamson (1995, p. 174) defines the institutional environment “as the set of fundamental political, social, and legal ground rules that establishes the basis for production, exchange, and distribution”. Factors that determine institutions can be analysed (Williamson, 1995). It is, therefore, possible to understand and anticipate the behaviours of the different actors by studying different institutional environments (Groenewegen et al., 2010, p. 29). Economists agree that institutions matter, play a central role in economic processes and determine both the rate and direction of economic growth (North, 1993).

2.2.8 Weak and missing institutions

Studies have shown that weak and missing institutions cause underdevelopment (Acemoglu & Robinson, 2008; Faundez, 2016; Ferrini, 2012; Greif, 2006). North (1990) attributes stagnation and underdevelopment of Global South economies to the inability of societies to develop effective, inexpensive means of enforcing contracts. For example, in the African context, institutions tasked with protecting property rights, enforcing all forms of contracts, and ultimately reducing transaction costs and delays in economic exchanges are weak (Mkandawire, 2009). Scholars emphasise that economies need institutions capable of explaining the complex dynamics of economic change and informing development policy, which entails analysing the polity, because it determines and enforces the formal rules (North, 1993). Rich individuals or groups use their economic resources to ensure that economic and political institutions work in their favour, thereby often making reform difficult and enabling dysfunctional institutions to persist (Acemoglu & Robinson, 2008). Shirley (2005) identifies two sets of institutions essential for economic growth, namely, (i) those that promote economic

exchange and encourage trust, and (ii) institutions able to influence powerful actors, including the state, to protect people's rights and private property.

2.2.9 Institutions matter and are unique to each social context

Institutions have come to be widely recognised by global development organisations such as the International Monetary Fund, the World Bank (Chang, 2007) and not-for-profit organisations. For example, the World Bank's *Governance Matters* series of publications started in 1999, and analyses the performance of institutions in various countries (Chang & Andreoni, 2019). Also, the 2002 World Bank's *World Development Report* was popularised using the slogan "institutions matter" and the 2017 version analysed governance and the law.

Acemoglu and Robinson (2008) attribute disparities in the prosperity of world economies to differences in economic institutions, and recommend institutional reform to address the development problem. However, developing countries are cautioned to create institutions appropriate for their environments and not necessarily to seek to replicate those in the developed world (North, 2005). Mkandawire (2009) cautions against, in particular, institutional monocropping, which is transplanting idealised versions of Anglo-American institutions onto developing countries. Also problematic in developmental practices is institutional monotasking, whereby an institution is assigned a single function rather than a multiplicity of functions (Chang, 2007; Mkandawire, 2009). In reality, there is no one-to-one mapping between the forms and functions of institutions. Hence, imported institutions that are incompatible, particularly with local informal institutions, fail to achieve the original intentions (Chang, 2007). Chang (2007) also notes that institutions may generate unintended consequences (positive or negative) and may end up being used for something other than the original purpose(s).

Institutions are central to all human interaction and determine socioeconomic activities, set the rules for economic actors and prescribe how to organise access to resources. They influence the nature of investments and determine how resources are produced and distributed. Institutions must be effective for any economy to grow. Societies and countries are unique, with a unique set of problems and desired economic activities at any given time. Therefore, there is no 'one-size-fits-all' institutional model for success and no set formula for institutional development (Chang, 2007). Nevertheless, societies and countries can make better choices and build better institutions by learning from each other's experiences.

2.3 OLD INSTITUTIONAL ECONOMICS

Like Veblen and Commons, old institutional economists argued that individuals change and transform institutions in the same way institutions determine and control human behaviour (Hodgson, 2009; Pereira & Lopes, 2018; Vatn, 2017). OIE emphasises that society influences an individual's behaviour, actions, or intentions regarding social, structural, cultural or institutional situations. According to OIE, societies develop habits, reflect and reason, and develop new habits that are passed on to new generations. From this perspective, analysing institutions becomes essential for understanding societies' economic and political powers and the efficiency of production and distribution systems. Proponents of this view stress the need to understand the evolution of institutions and emphasise the transformative process that changes human behaviour (Pereira & Lopes, 2018). OIE provided the foundation for highlighting the importance of institutions in human interaction and crucial elements of any economy.

Early institutionalists emphasised the importance of institutions (Pasinetti, 2020). OIE characterised a distinct shift from neoclassical economics (Parada, 2005). The OIE approach starts with general ideas on human behaviour and agency, institutions and the changing forms of economic interactions and moves to concepts on the different economic formations (Hodgson, 1998). Neoclassical economics, on the other hand "moves directly from a universal theoretical framework concerning rational choice and behaviour to theories of price and economic welfare, and so on" (Hodgson, 1998, p168). For Hodgson (1998, p. 167), OIE offers a "radically different perspective on the nature of human agency, based on the concept of habit", acknowledging the essential role of habits in human behaviour and interactions. OIE was criticised for not having a general theory of pricing behaviour, but only providing guidelines to address certain problems (Hodgson, 1998). Hodgson (2009) contends that the early institutionalists were not atheoretical or anti-theory, because Gustav Schmoller, Thorstein Veblen, Wesley Mitchell and John R. Commons all made theoretical contributions.

The old institutional economists adopted various theoretical positions, but these could not explain the economic problems of the Great Depression (Joskow, 2004). OIE emphasised the description of institutions and did not try to analyse them (Ronald Coase Institute, 1997; Nee, 2003). Economists criticised OIE after World War II for lacking strong theoretical foundations. Some theoretical positions were country or case-specific and, therefore, not generalisable. Other concerns were the Marxist approach by some proponents of the OIE (Joskow, 2004).

Economists perceived OIE as weak, because the microeconomic and macroeconomic policies of the time failed to provide solutions for the Great Depression of 1933 (Joskow, 2004). To understand the economic problems of the Great Depression and find answers, a new wave of studies emerged after World War II, emphasising the neoclassical paradigm, which entailed expanding theoretical models. Neoclassical economics analysis gained prominence and focused on macroeconomic, microeconomic and econometrics tools. Consequently, institutionalism became marginalised during the three decades that followed World War II (Joskow, 2004). Williamson (1993) observes that the emphasis on description and failure to advance a positive research agenda led to the collapse of the OIE School.

Economists contributed valuable information and tools for economic analysis after World War II. Also, the econometric techniques enabled the study of public policies and their impact on different sections of the population and guided policymakers in developed economies. However, by the mid-1980s, the value of neoclassical theoretical methods began to dwindle, and it could not explain many critical economic phenomena. By the late 1990s, the Structural Adjustment Programmes of the World Bank and the International Monetary Fund were under severe criticism for ignoring institutions in the local context when setting conditions for resource allocations for developing countries. Economic analysis ignored institutions or assumed they operated flawlessly and without cost (Chang & Andreoni, 2019; Joskow, 2004). These analyses also ignored institutions' economic and social characteristics, influencing government organisations, policy-making, and economic growth. Besides, it was impossible to relate these theories and tools to developing economies (Joskow, 2004). The gaps that surfaced after World War II highlighted the limitations of neoclassical economic theories and led to scholars searching for alternative approaches to understanding economic systems, hence, the emergence of the NIE approach.

2.4 WHAT IS NEW INSTITUTIONAL ECONOMICS?

NIE gained prominence in the 1970s and brought together a diverse group of economists with one shared intellectual position: institutions matter and can be analysed sufficiently (Joskow, 2004; Williamson, 1995). They focused on analysing the economics of institutions and organisations by borrowing concepts and analytical tools from anthropology, political science, sociology, law, management, and economics (Joskow, 2004; Williamson, 1995). Within 20

years, four Nobel Laureates⁴ were economists associated with NIE. There was also increased research, debates and publications on NIE concepts and policy debates in mainstream journals (Ménard & Shirley, 2011; 2012). NIE acknowledges that institutions are central to the performance of economies, provides a framework for studying comparative economic systems (Eggertsson, 2013) and explains why some economies have succeeded where others have failed (Shirley, 2005).

Proponents of NIE see the lack of progress in the economies of the Global South as a failure to establish suitable economic institutions at country and international levels (North, 2005; Pasinetti, 2020). NIE focuses on understanding the economics of institutions, and how they emerge, function, grow, interact, determine governance arrangements, and support production and exchange in an economy (Ménard & Shirley, 2008). The emphasis is on understanding people's beliefs and norms, how they learn as individuals and as societies, and how this affects the performance of economies over time (North, 2005). Thus, transactions are not only determined by competition (demand) and scarcity (supply), but also by the 'rules of the game' (institutions).

2.4.1 Schools of thought

From the start, NIE had distinct schools of thought, as becomes clear from two pioneering papers by Ronald Coase, "The Nature of the Firm" (1937) and "The Problem of Social Cost" (1960/1988a); two defining books – North and Davis on *Institutional Change and American Economic Growth* (1970) and North and Thomas in *The Rise of the Western World* (1973); and the landmark book, *Markets and Hierarchies* (1975) by Williamson (Ménard & Shirley, 2011). Coase's work, such as *The Firm*, although written in 1937, only became prominent in the 1980s, because the "concept of transaction cost had not been incorporated into a general theory" (Coase, 1991). Williamson (2002) adds that it took longer to understand Coase's message because it is easier to say organisations matter than to show how and why they do.

Coase and Williamson focused on property rights and contracts at the firm level, while North analysed the role of the state and the broader institutional environments. These contributions built NIE into a robust conceptual and analytical tool (Joskow, 2004; Ménard & Shirley, 2008; 2011; 2014). NIE also became known as the North-Williamson School (Parada, 2005).

⁴ Ronald Coase (1991), Douglas North (1993), Eleanor Ostrom (2009), and Oliver Williamson (2009).

2.4.2 Main focus areas

Williamson (1995, p. 174) refers to Davis and North's (1971) two-part definition of NIE focus areas:

The institutional environment is the set of fundamental political, social, and legal ground rules establishing the basis for production, exchange, and distribution. Examples are rules governing elections, property rights, and the right of a contract.

An *institutional arrangement* is an arrangement between economic units that govern how these units can cooperate or compete. It [can] provide a structure within which its members can cooperate...or [it can] provide a mechanism that can affect a change in laws or property rights (pp. 5–6; emphasis added).

The first part examines institutions from a microanalytical perspective, and the second, which Williamson (1995, p. 174) calls “Institutions of governance”, uses a bottom-up approach to economic organisation (a microanalytical perspective), by focusing on understanding governance structures, including how organisations operate, transform and impact the institutional environment. The two parts are complementary, and their interaction shapes institutional change (Caballero & Soto-Oñate, 2016). Besides, individuals are also pertinent to economics analysis, hence, understanding human behaviour (Williamson, 1995). The analysis of economic systems needs to consider all three levels (individual, organisation, institutions).

2.4.3 Meso-institutions

Ménard (2014) later introduced the concept of meso-institutions to bridge the gap between institutions at the macro (societal) level and those at the micro (actors/players) level. According to Ménard (2014; 2018), meso-institutions – also referred to as intermediaries – are “devices and mechanisms”, formal or informal, that delineate specific rules, and set parameters and provide guidelines for implementing and enforcing regulations (rules of the game). Ideally, these intermediaries ought to first “translate, adapt, and allocate rights” and formulate specific laws, taking into consideration the interests of the relevant actors and in line with the institutional environment (general rules) (Ménard, 2018, p. 8). Secondly, meso-institutions set guidelines for implementing specific rules, including consequences for noncompliance. This role places intermediaries in a unique and powerful position, but also requires them to be independent and impartial. Thirdly, meso-institutions should monitor the implementation of the specific rules, provide incentives for compliance and propose changes in the rules when

conditions change. Meso-institutions organise transactions, provide alternatives and create a more predictable environment for economic exchange. Thus, the failure of a meso-institution to execute its functions according to precepts acceptable to society or as an outcome of its processes not being aligned with societal values (mismatch) may disrupt economic activities and lead to social discontent or even conflicts (Shirley, 2005). Trust is critical for cooperation, reduces uncertainties and complexity and promotes socioeconomic development efforts (Zikos, 2020). Also, societies that overcome obstacles to contracting and working collectively can develop themselves.

2.4.4 The difference between OIE and NIE

NIE is not a modern version of the OIE (Eggertsson, 2013; Joskow, 2004; Parada, 2005; Spithoven, 2019). Scholars also believe that the difference between NIE and OIE is too big to reconcile the approaches (Spithoven, 2019). Although both approaches agree that institutions matter, they differ in definitions and approaches to institutional analysis. OIE uses an evolutionary approach, and its point of departure is society (collective action), which sets the ground rules according to the concept. The NIE approach is individualistic, and analyses human behaviour and how it is shaped by institutions (Parada, 2005). Parada (2005) describes NIE as operating on the periphery of neoclassical economics, with an orthodox view, whereas OIE uses a heterodox approach. Besides, regarding empirical and econometric methods, the NIE approach is less formal than neoclassical economics and more formal than OIE, which uses well-developed mathematical models (Parada, 2005). Formalism “uses an abstract language such as mathematics or symbolic logic instead of natural linguistic or literary methods of presentation” (Rutherford, 1994, p. 7). NIE is a “consequent logical refinement of neoclassical methodology” (Zimbauer, 2001, p. 3). Williamson (1993) believes that the difference between OIE and NIE is that, while the former lacks theory and is overly descriptive, the latter affirms that institutions are susceptible to analysis.

2.4.5 NIE theoretical development

According to Richter (2005), NIE has extended its theoretical development to various areas, such as the theory of collective action, property rights analysis, the economic analysis of the law, public choice theory, constitutional economics, transaction cost economics, the principal-agent approach, the theory of relational contracts, and comparative economic systems. It is a framework for social science research that explains societal dynamics, and is essential for

developing strategies for changing institutional arrangements and human behaviour. NIE generates essential knowledge for growing and shaping economies. As Ménard (2018:1) argues, “understanding the conditions of *implementation* and *enforcement* of rules and norms and the institutional devices through which this is done is central for explicating how economies work”. The prominence of NIE has influenced mainstream neoclassical economics, which now includes the study of institutions (Parada, 2005, p. 2).

Ankarloo (2002) attributes the prominence of NIE to its contributions to making the neoclassical economic theory more realistic, taking into consideration the social and historical aspects. NIE has extended beyond the prices of factors of production and considers individual choices, which institutions determine. The field has shown many ways to organise transactions, explain the market, and provide tools for economic systems analyses. The contributors are diverse, so NIE has conflicting theories (Ménard & Shirley, 2012; 2014). The International Society for New Institutional Economics, a network of NIE contributors founded in 1997, has enabled discussions and cooperation, promoted the development of scholars and produced mainstream publications. The Ronald Coase Institute (since 2000) and the European School of New Institutional Economics (since 2002) are other platforms that have facilitated NIE discussions, training and research across disciplines. Considering that the spectrum of institutions is broad (Joskow, 2004), NIE does not focus on all institutions or cover all areas of economic performance. It mainly concentrates on analysing the institutional environment and institutional arrangements (i.e., institutions of governance).

2.5 NEW INSTITUTIONAL ECONOMICS CONCEPTS AND THEORETICAL FRAMEWORKS

Scholars have applied various tools and frameworks to understand why society changes, how these changes affect institutional arrangements and how institutions, in turn, influence society. NIE theories analyse the interaction between people and the institutions they create and the choice of modes of governance of economic transaction, production exchange and distribution of resources to explain this complex phenomenon. Sykuta and Cook (2001) describe three critical dimensions of a transaction relationship, namely, the allocation of (i) value, (ii) uncertainty and (iii) property rights. The three are interdependent and determine the character of the transaction at a given time. This section discusses Williamson’s analytical framework for social analysis, followed by the ‘golden triangle’ framework, which illustrates the three core NIE concepts (Ménard & Shirley, 2012; 2014).

2.5.1 Williamson's social analytical framework

Williamson's (2000) framework divides social, political, legal and economic institutions into four levels of social analysis that are hierarchical and interrelated. NIE assumes that institutions strive for efficiency and keep changing from one institutional equilibrium to another. Each type of institution adapts at a different pace, as illustrated in Figure 2.1. Joskow (2004) refers to two broad categories of institutional change. Firstly, changes occur because of society's welfare and expectations, such as economic and political stability, levels of employment and inequality, the quality of life and perceived direction of socioeconomic change, opportunities for individuals to achieve their ambitions, availability of human and natural resources, and security. When people feel good about their welfare and prospects, they want prevailing conditions to continue. Dissatisfaction with the state of affairs will stimulate change, but not necessarily in a constructive way. Secondly, a change in a lower-level institution triggers a change in a higher-level institution. A higher level can impose constraints on the level immediately below. Williamson's framework provides a structure for social analysis and explains societal and institutional problems and possible solutions (Williamson, 2002). It helps to evaluate the comparable advantage of institutional arrangements (see Figure 2.1).

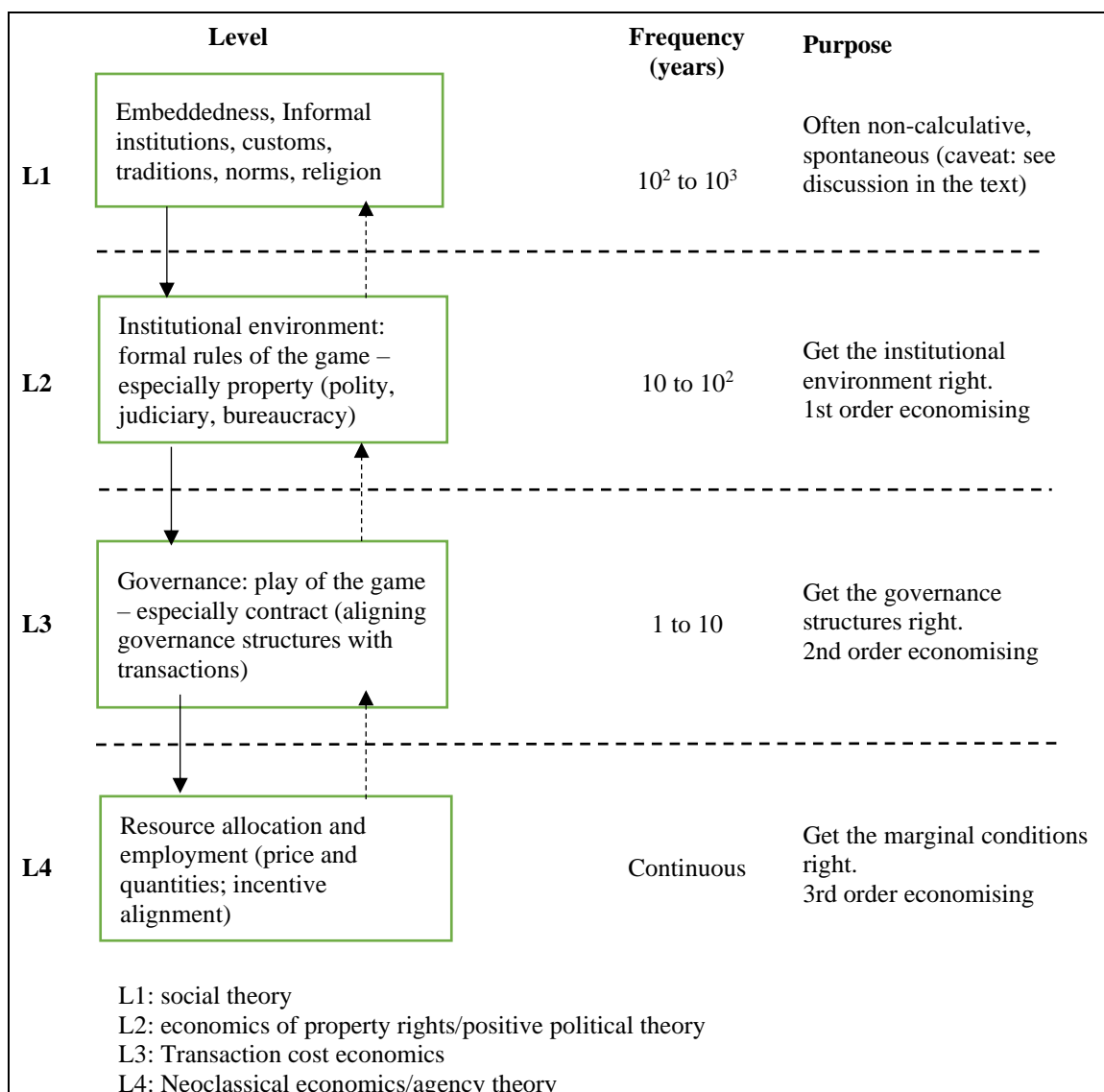


Figure 2.1: Williamson’s analytical framework

Source: Williamson (2000, p. 597)

Level 1: Embeddedness (social-cultural foundations)

Embeddedness is at the top level of the institutional hierarchy and contains informal institutions, such as social norms, customs, traditions, taboos and code of behaviour. This level emphasises the significant role of informal institutions, which is to “modify, supplement, or extend formal rules” (North, 1990, p. 87). The informal rules influence the formal institutions (rules and regulations), power relations, how resources are exploited and managed, how communities work collectively and build mutual trust, and how they influence socioeconomic outcomes. Formal rules may be developed deliberately to supersede informal rules that no

longer meet an evolved society's requirements. Informal institutions change very slowly, taking from 100 to 1 000 years. Sometimes, authorities impose new institutions on traditional systems, which may explain conflicts and political instabilities. The efficiency of the institutions depends on how adaptable they are to changing socioeconomic, political and environmental conditions (Behera & Engel, 2006). According to Williamson (2000), the origins and rationale of these institutions are unclear. Over time, some become functional, some take on a symbolic value, while others evolve from complementary institutions (formal or informal). Nevertheless, these institutions have a lasting grip on how societies behave. Williamson (2000) states, furthermore, that most institutional economists consider Level 1 a given.

Level 2: Basic institutional environment

This level describes an institutional environment humans create using formal rules, such as constitutions, regulations, property rights, fundamental human rights and legal institutions. The rules determine rights and responsibilities to access and use resources. The rules change over the years through a series of legislative processes aimed at, among others, enhancing government control, improving the safety and security of employees and local communities, ensuring redistribution of resources and protecting the natural environment (Behera & Engel, 2006). Changes may create high transaction costs, such as costs for accessing information, monitoring agreements and enforcing legislation, and may lead to illegal activities. The effectiveness of the rules will depend on the strengths and weaknesses of the communities (interest groups) and the state. These institutions are constrained by the informal institutions (Level 1) and change faster than Level 1, taking between 10 to 100 years. However, the rules of the game may change even faster. For example, the 9/11 attacks on New York and Washington changed society's sense of public safety in crises. Other examples are the 2008 Global Financial Crisis and COVID-19.

Level 3: Institutions of governance

Level 3 deals with 'how the game is played'. At this level, governance arrangements are chosen based on the primary institutional environment (Level 2) and prevailing economic conditions. "The governance of contractual relations becomes the focus of analysis" (Williamson, 2000, p. 599). Formal rules are interpreted or enforced, impacting society in different ways, including setting rules and regulations for resource use and management, and mechanisms to ensure that the rules are followed. Formal rules also ensure that those who are supposed to benefit from the arrangements benefit and achieve the desired objectives. The main goal of governance is to

ensure order, adapt as conditions change, and minimise uncertainties and transactional costs. Arrangements include contract definition, contract enforcement and conflict resolution mechanisms. Level 2 (basic institutional environment) constrains changes at this level, which may take one to 10 years, for example, the renewal of lease contracts and the hiring of equipment.

Level 4: Resource allocation and employment

Level 4 refers to the daily operations of the economy and features household-level incentives and the participation of individual households and other stakeholders (government and businesses) in community activities (including decision-making) and compliance with rules. It also includes theories of asymmetric information, which create imbalances or unfairness in a transaction, and cause problems before or after the transaction. Neoclassical analysis works at this level, featuring theories on the general rules or principles about the behaviour of firms and consumers. These theories explain the determinants of prices and output, supply and demand (Behera & Engel, 2006). The focus at this level is on getting the marginal conditions right. The combined effect of the other three levels shapes incentives at this level (Behera & Engel, 2006).

Social norms and culture are fundamental in determining societal behaviour and the appropriate institutions for optimal economic activities at a given time. For example, it is easier for a society with private ownership traditions to embrace capitalism in its practices than it would be for one with communal rules (Joskow, 2004). Dominant religious practices, such as Christianity, Islam and Hinduism, greatly influence societal preferences, shape development programmes, and determine the effectiveness of policies. A mismatch between beliefs and economic institutions is bound to affect economic growth adversely. The factors influencing institutions that determine the organisation of transactions and societal behaviour are illustrated by the ‘golden triangle’.

2.5.2 The ‘golden triangle’ of NIE

NIE is grounded on three main concepts: transaction costs, rights, and contracts, as illustrated in Figure 2.2. Ménard (2018) describes transaction costs as economic and political, which are often in conflict. Similarly, rights include property and decision rights, and the two often disagree, becoming a source of tension in economic activities. Contracts refer to complete and incomplete contracts; contracts are often incomplete, causing tensions. The three concepts

influence each other and determine how exchanges happen. Below, the concepts are described further.

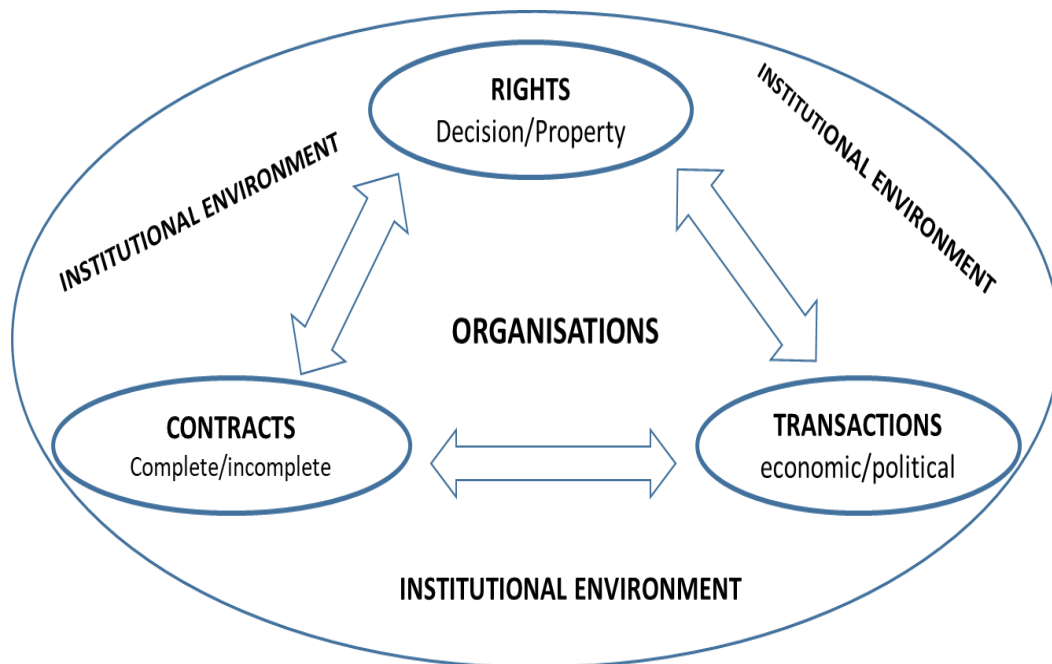


Figure 2.2: The ‘golden triangle’ of NIE

Source: Adapted from Ménard (2018, p. 4)

2.5.3 Transactions and transaction costs

The transaction costs concept is the main theoretical achievement of NIE (Ankarloo, 2002; Eggertsson, 2013). Transactions occur between different actors according to the ‘rules of the game’ (institutions), and signify the transfer of the right to use a product. NIE analyses both the transfer of rights and the governance arrangements (modalities) under which the rights are transferred (Ménard, 2014). Transaction costs refer to the economic value of inputs associated with performing a transaction process and are costs incurred by the consumer but not transferred to the seller of the product – it is “the cost of making exchanges” (Wallis & North, 1986, p. 95). Caballero and Soto-Oñate (2016) describe transaction costs as “the resources used to establish, maintain and transfer property rights”. Classical economic theory assumes that the buyer and seller have the same information, meaning the transaction can advance without costs (Liang & Huang, 1998). In reality, however, this assumption is not correct. Bounded rationality and opportunism are two factors of human behaviour that influence transaction costs. Bounded rationality acknowledges that information regarding the products is often incomplete and exchange conditions uncertain. Besides, the economic actors cannot plan and foresee

eventualities, negotiate contracts and protect themselves against opportunistic behaviour. Opportunism refers to the human behaviour of “self-interest seeking with guile” (Williamson, 1995, p. 183), for example, the tendency to provide false or partial information to conclude a transaction driven by self-interest.

The concept of transaction costs was introduced by Coase into economic analysis in the “The Nature of the Firm” (1937). Coase explains that some exchanges are directed by price mechanisms (demand and supply) and others by firms. Transaction costs may decrease through mechanisms other than markets, such as firms and governments (Allen, 1999; Ronald Coase Institute, 1997). The entrepreneur has a coordinating function and organises production in the firm, which includes discovering relevant prices. In this case, getting the relevant information is the cost of using the market or price mechanism. Measuring exchanges and enforcing contracts is also costly (North, 1990; Vega & Keena, 2014). Coase points out that firms emerge in an economic system because there are costs involved in transacting in the market (1937; 2005). Coase (1937) adds that this cost can be reduced, though not altogether eliminated. Instead of negotiating directly with the suppliers of factors of production, the entrepreneur can purchase factors of production at a cost cheaper than the market price, thereby saving on the costs. A firm will aim to buy at prices lower than the market price, possibly by negotiating better terms of exchange. If this fails, buying at the market price is always possible. The entrepreneur can also minimise contract costs by reducing the number of contracts to be concluded. Thus, a firm emerges when very short-term contracts are not desirable. Unlike neoclassical economic theory, transaction cost theory considers the costliness of economic exchanges (Engelbrecht, 1997; Nee, 2003). Coase’s transaction costs concept was neglected for over 30 years because it contradicted the neoclassical assumption that the market coordinated the price mechanism without cost (Ménard & Shirley, 2011).

Economic actors will look for efficient ways of governing their transactions and aim to maximise net benefits, which is the difference between total and total costs (transaction and transformation costs) (Wallis & North, 1986). Transaction costs tend to increase with time as the economy grows and becomes more complex and sophisticated (Engelbrecht, 1997). Change in institutions (rules of the game) happens predominantly to minimise transaction costs and increase the efficiency of economic performance (Caballero & Soto-Oñate, 2016; Wegerich, 2001). Transaction costs, therefore, directly influence the organisation of transactions, the nature of goods and services produced, and the size and efficiency level of the economy

(Ménard & Shirley, 2008; 2012). Since transaction costs form an integral part of an economic system, they should be identified and understood in social analyses.

2.5.4 Types of transaction costs

There is little consensus on the main elements of transaction costs, making it difficult to measure these costs. Consequently, a quantitative measure of transaction costs has not been possible because there is “no clear general theoretical concept of the cost of exchange” (Wallis & North, 1986, p. 96). This section will investigate at the different ways NIE contributors have categorised transaction costs.

When information is costly, economic actors incur transaction costs, such as the cost of (i) searching for information on price, products, buyers and sellers and their behaviour and circumstances, (ii) bargaining to find the exact position of buyers and sellers when prices are endogenous, (iii) making contracts, (iv) monitoring contractual partners, (v) enforcing contracts, and (vi) protecting property rights against third-party encroachment, for example, protecting against pirates or even against the government in the case of illegal trade (Eggertsson, 1990, p. 15). Nanka-Bruce (2004) distinguishes between fixed and variable transaction costs in and outside firms. Transaction costs within the firm include coordination, organisational costs and performance evaluation, while transaction costs outside the firm entail contracting costs and contract fulfilment costs. There is also a difference between voluntary (avoidable) and involuntary (unavoidable) transaction costs (Eggertsson, 2013). Transaction costs include creating, maintaining, using, and changing the structure of rules and organisations (Furubotn & Richter, 2005; Greif & Kingston, 2011).

Ménard (2018, p. 7) uses the term ‘political transaction costs’, as introduced by North, to refer to “the costs of reaching and stabilising a coalition among constituencies with different, diverging, even conflicting interests”. The concept of political markets refers to the voluntary exchanges of political rights, and players include citizens, candidates, legislators, political parties, trade unions and governments, who may exchange votes, political promises, bills, political support, and so on (Caballero & Soto-Oñate, 2016). According to Caballero and Soto-Oñate (2016), transaction costs are higher in political and economic markets. The notable cost difference has numerous reasons, including that political exchanges and commitments are not clear or measurable, but mostly informal and partially subjective. Often, political actors manipulate transaction costs to achieve personal interests. Thus, the intensity of political

exchange is higher and political organisation is designed to reduce political transaction costs (Caballero & Soto-Oñate, 2016).

Some scholars categorise transaction costs along with production functions, such as (i) the market, which mainly includes information and bargaining costs; (ii) managerial, which are costs for drawing up employment contracts; and (iii) political transaction costs, such as the costs of formulating, maintaining, and changing formal and informal institutions (Nanka-Bruce, 2004). Transaction costs can be ex-ante or ex-post costs. Ex-ante costs occur before the exchange, including searching for information, drafting and negotiating an agreement, and protecting the contractual arrangements. Ex-post costs occur after the exchange and include costs for evaluating inputs, measuring outputs, and monitoring and enforcement (Martins et al., 2010). Therefore, identifying and measuring transaction costs entails finding a unified definition that includes various concepts.

2.5.5 Governance of transactions

Williamson (1995) investigated the governance of exchanges. He wanted to understand why some economic transactions occur within the firm (making a good or service), while others are bought from external parties. Building on the transaction cost concept, Williamson pioneered transaction costs economics (TCE), a branch of NIE and an interdisciplinary field that combines law, economics, and organisation. It moves the focus away from a product's price and output and makes transactions the basic unit of analysis. TCE views the firm as an organisation with a governance structure beyond its production function. It acknowledges that organisation matters, and organising mainly aims to minimise transaction costs (Williamson, 2002). For firms, the central goal of organisations is to guarantee the fulfilment of contracts and to keep to the rules to reduce transactional costs (Pereira & Lopes, 2018).

TCE considers different ways of governing economic activity and distributing benefits, and notes that each mode differs in costs and competencies. Furthermore, each mode of governance provides different incentives, has different controls, and is guided by different contract laws (Williamson, 1995). Moreover, governance structures have different types of fundamental properties, and each option in the continuum has specific costs (weaknesses) and benefits (strengths) (Vega & Keena, 2014). The main properties of these structures identified by Vega and Keena (2014) are adaptive or coordinated action, incentive intensity (ability to motivate people), administrative control, and dispute settlement mechanisms. TCE recognises that transactions align with appropriate governance structures (Williamson, 2002). TCE uses

transaction costs to analyse organisational efficiency, effectiveness and efficacy and can also inform a firm whether to make or buy a product or service (Nanka-Bruce, 2004). TCE also provides tools for analysing contractual agreements and reasons for the preferred arrangements (Ménard & Shirley, 2008). Williamson (2000) describes governance as infusing order, mitigating conflict and enabling mutual gain from voluntary exchange.

Modes of governance change as institutional arrangements change, and give way to other modes of organising, which may influence the firm's views on contracts and investments. Williamson (1995) emphasises adaptation as the central problem of economic organisation. He refers to two kinds of adaptations: One is the distinguished autonomous adaptation in the market in response to price signals and the second is cooperative adaptation in the firm, as determined by in-house imperatives. Centralised forms of governance have high levels of cooperative adaptability, while decentralised modes of governance find it easier to adapt to changes in the market. Nevertheless, efficient organisations can quickly change their governance structures in response to their adaptive needs, including some trade-offs.

A firm may opt for vertical integration to reduce costs. Vertical integration replaces the external market with internal coordination (Vega & Keena, 2014). In this case, a firm opts to use its specialised skills to produce a product if it is cheaper than transacting in the market. Vega and Keena (2014) refer to two conditions TCE provides when vertical integration is a better option. Firstly, when there is a possibility of one of the parties behaving opportunistically and taking advantage of the situation; and secondly, when it is very expensive to get protection from opportunistic behaviour through ordinary means such as negotiation, writing, monitoring and enforcement of contracts (implying transaction costs). Thus, the exchange is governed by the market, on the one extreme, or the firm, on the other. In between is a continuum of governance structures (hybrids) – a crucial TCE concept (Martins et al., 2010).

2.5.6 Characteristics of transaction costs

Transaction costs are identifiable and can be measured qualitatively or quantitatively. In empirical studies, the focus is on relative transaction costs and not on direct measurement of total costs (Wang, 2003). Proxies are believed to influence the transaction cost, and are used to compare transaction costs of different transactions or contractual options. Proxies reflect transaction characteristics that determine transaction costs, which, in turn, determine the appropriateness of a governance structure (Alagheband et al., 2011; Obinska-Wajda, 2016;

Williamson, 1996). Characteristics take into consideration human behaviour of bounded rationality and opportunism and include the following (Garrouste & Saussier, 2008):

- a) **Asset specificity:** the degree to which assets are specific to a transaction. A non-specific asset can easily be used for other activities, while an asset with high specificity is difficult to repurpose for other uses without losing its value. Williamson (1996) identifies six types of specificity: (i) site specificity (geographic location); (ii) physical asset specificity (specialised equipment and tools); (iii) human asset specificity (associated with employees' knowledge, expertise and learning by doing), (iv) dedicated asset (when too much has been put into an investment to maximise value for the customer), (v) brand name capital (referring to reputation) and (vi) temporality (investment made to enable timely response or coordination of human assets). The more specific the assets are, the higher the transaction costs and the more difficult it is to transfer them. Opportunism is more likely to happen as the level of specificity increases (Garrouste & Saussier, 2008; Williamson, 1996).
- b) **Frequency:** Repetitiveness of a transaction. The higher the frequency, the lower the transaction costs.
- c) **Uncertainty:** For example, the circumstances surrounding the transaction. High levels of uncertainty lead to high transaction costs.
- d) **Ease of measurement:** The more complicated or complex it is to assess the quantity or quality of asset exchanged, the higher the transaction costs.

2.5.7 Transactions costs and the economy

Transaction costs account for a significant portion of economic activities in any economy. Transaction industries, referred to as intermediaries, include finance, insurance, real estate, wholesale trade and retail trade (Wallis & North, 1986), and they facilitate exchanges by coordinating transactions, thereby enabling the transfer of claims and enacting and monitoring contracts. Wallis and North's study, reported in "Measuring the Transaction Sector in the American Economy, 1870-1970" (1986) empirically identifies and measures transaction costs by dividing the economy into two parts, namely the transformation (or production), and the transaction sectors. Transaction costs are costs for performing the transaction function, while transformation costs refer to the costs of transforming inputs into outputs (Wallis & North, 1986). Wallis and North (1986) estimated that transaction costs as a proportion of the United States gross national product grew from 25% in 1870 to over 50% in 1970.

In a more recent study, Furubotn and Richter (1998, p. 51) estimated that transaction costs account for 60% of the GDP in developed economies (Groenewegen et al., 2010, p. 23). In Australia, the size of the transaction sector grew from 32% in 1911 to 60% in 1991 (Wang, 2003, p. 7). The growth of the transaction sector (cost of transaction function) is the result of increased levels of urbanisation, globalisation, development of the manufacturing and service sectors, and growth in the size of governments and firms. As the economy grows and becomes more sophisticated due to technological advances, specialisation and division of labour, transaction costs also increase (Wallis & North, 1986; Eggertsson, 1990; Engelbrecht, 1997, p. 3; Wang, 2003).

Wallis and North (1986) state that transaction industries are essential for improving production, though increases in transaction costs may limit economic growth. Weak and inefficient systems increase exchange costs and limit investment and growth. This explains the difference between developed and developing countries (Wallis & North, 1986).

2.5.8 Property rights

To avoid conflict, wastage and unnecessary losses, societies need a clearly defined way of using and controlling their valuable resources. Property rights in the NIE context refer to “sanctioned behavioural relations among economic agents in the use of valuable resources” (Libecap, 1999, p. 5). North (1990, p. 33) defines property rights as “the rights individuals appropriate over their labour and the goods and services they possess”. Property rights are formal and informal social institutions that delineate access to privileges (Kim & Mahoney, 2002) and they are susceptible to opportunistic behaviour. Coase, in “The Problem of Social Cost” (1960), argued that, actually, what gets traded on the market are rights that individuals have to perform specific actions, and not commodities, as assumed by the neoclassical economists (Ménard & Shirley, 2011). The property rights concept is broader than in legal terms and includes what is supported by social norms that the state may not assign (Alchian, 1965). Property rights include rights not generally classified as ‘property’, such as access to public amenities.

2.5.9 Property rights and economic activities

Three categories of property rights exist: (i) a right to use an asset, including the right to change, including destroying that asset; (ii) a right to earn an income from the asset, individually or

working with others; and (iii) a right to alienate – transfer or exchange –the asset (Alchian, 1965; Libecap, 1999; Mahoney, 2004).

Property rights, viewed from an economic perspective, emphasise the control over an asset and what the right holder believes they can do with the rights, irrespective of whether the rights are owned legally (Eggertsson, 2013; Mello, 2016). Economic rights determine incentives, shape innovation and technology, and influence economic production and exchange (Mello, 2016). Property rights determine the value of an asset. Also, property rights are decision-making rights, because the rights holder decides how and when to use the resource. The property right's owner has “the right to use goods (or to transfer that right) in any way the owner wishes so long as the physical attributes or uses of all other people's private property is unaffected” (Alchian, 1965, p. 818). Property rights changes directly affect wealth distribution and may promote or impede economic growth in a society. Hence, societal change processes can create divisions based on how property rights are distributed (Mahoney, 2004). These rights belong to individuals, firms or the state and must be enforceable to be effective. Private property rights are property rights owned by an individual, while groups own collective property rights. Property rights owned by the state are also collective property rights (Obinska-Wajda, 2016).

It is possible to divide property rights when more than one person has the right to use an asset or resource. For example, one person may have the right to construct a structure on the land, the other to walk on it, fly over it or extract mineral resources from underground (Alchian, 1965; Eggertsson, 1990). The right to use the partitioned asset or resource may be temporary or permanent, and transferable (Alchian, 1965). Property rights may be shared if individuals agree to share the usage of an asset or resource. The sharing arrangement can be in joint ownership or a partnership. Business partnerships, trusts, not-for-profit organisations, agencies, employer–employee relationships, and marriages are examples of shared arrangements. Each arrangement is different in terms of objectives, governance, cost-benefit sharing system, and expected behaviour of the owners (Alchian, 1965).

Property and transaction cost rights are closely related and are described as “two sides of the same coin” (Eggertsson, 2013, p. 2). An economic exchange entails establishing, transferring and maintaining property rights, which is a process that generates transaction costs (Allen, 1999; Eggertsson, 2013).

2.5.10 Enforcement of property rights

Enforcing property rights may require excluding others from using the asset or resource, in which case the owner has exclusive rights. Exclusive property rights ought to be enforced by both the owner and the state. Enforcement costs are often lower with private ordering than state intervention (Ménard & Shirley, 2011). Elinor Ostrom (1990) argues that societies can, under certain conditions, govern themselves and be effective without top-down regulations. Such conditions include clearly defined boundaries for the users of the resources, healthy social norms and procedures for conflict resolution, and monitoring and enforcement of rules. The costs of enforcing property rights impact the value of that asset, and rising costs limit exchange and erode the asset value. When the asset net value drops to zero, the owner may abandon the asset (Eggertsson, 1990). State involvement in enforcement may create assurance for the owner and increase the asset value, while the absence of state involvement increases transaction costs.

The state has a central role in delineating and enforcing property rights. However, this may be ineffective, for example, in weak states when the costs of measurement of relative values are high, or in cases of fast economic growth. When the cost of determining the asset value is high (measurement costs), the state may step in to regulate (Eggertsson, 1990). In such instances, the state may use its involvement to infringe on property rights. While a stable and productive state protects property rights, attracts investment and promotes economic growth, in weak states, property rights owners may seek other means of enforcement, which are costlier and ultimately reduce asset values. In weak states, individuals or firms establish alternative structures to provide property rights enforcement services, in competition with the state. Elements against the state may take over or manipulate state functions, thereby weakening the ability of the state to enforce law and order and, ultimately, impeding economic growth. Criminal elements thrive in such circumstances and may even take over the state, thereby creating anarchy (Alchian, 1965).

Libecap (1999) emphasises that property rights matter. They are prestigious institutions providing the necessary economic incentive system to shape resource allocation. Well-defined property rights and active, formal and informal institutions for enforcing property rights are essential for enabling rights transfer. Disregarding property rights hinders economic exchange, increases transaction costs, and may lead to economic stagnation. NIE emphasises that economic outcomes depend on the distribution of property rights and the central role played by institutions in defining and enforcing rights.

2.5.11 Contracts

The different contractual arrangements and why some are preferable to others are aspects that are studied by NIE. Contracts are rooted in the institutional environment, formal and informal institutions, and the enforcement mechanisms (Ménard, 2014). Transaction costs are at the core of any contractual arrangement, which ultimately determines the suitability of contractual agreements. Coase introduced the concept theory in his seminal article, “The Nature of the Firm” (1937). Coase developed a contractual approach to the firm, which Williamson improved on and applied a contractual approach to develop the governance of transactions theory (Brousseau, 2008). In the case of a firm, Coase (1937) refers to a contract as an agreement, in which the factor of production agrees to follow the instructions of the entrepreneur “within certain limits” (Coase, 1937, p. 391). Often, details of the agreement are not included in the contract. Coase (1937) notes that it is easier to stipulate more details for commodities exchanges than for services. He adds that long-term contracts reduce transaction costs, unlike several small or short-term contacts. Furthermore, the more transactions a firm (entrepreneur) can handle, the larger the firm can grow, which directly affects its efficiency.

According to Coase (1937), there comes a time when the costs of organising an additional transaction are equal to the cost of procuring that additional item from the open market. The firm must stop growing in such a situation, as any additional transaction would show diminishing returns (Coase, 1937). The concept of diminishing returns may explain why some firms do not grow beyond a specific size and why some big firms collapse (Kállay, 2012). At this stage, the firm might introduce technology to sustain the desired efficiency level and expand the firm's size further. Coase (1937) explains that a firm can grow in size by either combination or vertical integration. Combination or lateral growth occurs when an entrepreneur takes up transactions previously organised by one or more entrepreneurs. Vertical integration occurs when the entrepreneur starts organising transactions once procured from the market. As the number of transactions increases, the corresponding transaction costs also increase. The longer the contracting period, the less likely it is that parties will comply with the agreement. Through NIE, contracts have developed into useful analysis tools (Brousseau, 2008). Eggertsson (1990) refers to the firm as a web or nexus of contracts.

Contracts are also analytical tools that are applicable to any economic or social relationship. This definition views almost all kinds of relationships as contracts, with little regard for the details of the agreements and whether these agreements are enforceable. Contracts are also a

way of coordinating mutual agreements and controlling hazards bound to occur in transactions (Brousseau, 2008). NIE emphasises the cost of these contractual agreements, noting that they are costly to design and manage (Brousseau, 2008). As observed by North (1990, p. 58), it is often “costly to find out that a contract has been violated, more costly to measure the violation, and still more costly to apprehend and impose penalties on the violator”. Williamson (2002) refers to contracts as written and unwritten agreements between parties that are hardly properly enforced or fully complete, because of limited information (bounded rationality). Due to uncertainty about the future, parties cannot add clauses to the contract to secure their interests. Over time, the institutional environment may change, impacting the contracting parties’ conditions, thereby making commitments difficult or impossible to meet, or merely disinteresting. In such instances, contracting parties may call for adjustments in the agreements, or may end up in breach of the contract. Thus, contracts may be imperfect and costly, and these limitations influence how contracts are designed (Brousseau, 2008). Kállay (2012) identifies two groups of contracts: (i) complete contracts, when parties can regulate all aspects of their arrangements based on the information available; and (ii) incomplete contracts, when parties cannot control all facets of their contract due to insufficient information. In this case, parties must keep renegotiating their arrangements as conditions change. Contracts are self-enforcing when they pay the contracting parties to comply to them or when complying yields more benefits than the costs of renegeing on the agreement (North, 1990). The design of incomplete and imperfect contracts includes clauses for remedial action and an option for reversing arrangements (Brousseau, 2008).

Considering the possibility of conditions changing, contracting parties add clauses to the agreement that ensure each party prefers to fulfil their promise rather than face the consequences. The design of credible contracts allows the contracting parties to gain more from cooperation than from defection (Brousseau, 2008; North, 1993). The objective is to decrease the effects of uncertainty and create more predictability. Brousseau (2008) suggests two options. Firstly, contracting parties agree on terms of compensation, financial or otherwise, should one of the parties fail to comply. Secondly, a third party, an individual or a firm, may be brought into the contractual process and paid to monitor and enforce the contract. The third-party or the ‘enforcer’ appointment depends on its formal or informal capabilities. The danger in a society with weak institutions is that, due to opportunistic behaviour, the enforcer may take advantage of the situation and use their position to capture the resource from the contracting parties, or transgress various rights. This situation also applies to the state when individuals are

assigned official duties to use the coercive power of their state for their benefit, excluding the broader society. Nevertheless, securing the agreement or exchange (making the contract credible) and ensuring that parties comply, is possible. Also, capable enforcement mechanisms should be in place, including incurring costs for making decisions and exercising constraints. Thus, the prevailing institutional environment plays a critical role in determining the behaviour of society regarding contractual arrangements. Contracts are incentive mechanisms that enable exchange in the community, control transactional hazards, and act as a governance mechanism for implementing organisational decisions (Brousseau, 2008).

Contracts increase economic efficiency by making economic exchanges more manageable and predictable. They enable various economic relationships, ranging from the day-to-day exchange of goods and services to long-term cooperation. Contracts enable an owner (principal) to hire an individual or firm (agent) to carry out an activity on their behalf. This option creates a business opportunity, since the agent must make management decisions, represent the owner's interests, and get a share of the profits (Kállay, 2012). Although this arrangement has the potential for conflict of interest, mechanisms can protect both parties. Contracts enable long-term and complex exchanges, commitments and cooperation and create trust in cases where opportunistic behaviour would prevent such relations (Brousseau, 2008). Parties can agree on allocating property rights, decision-making procedures, sharing risks, recourse, and conflict resolution.

Individuals, companies and the state make contractual arrangements to achieve mutual goals. For example, a business or the government could commit to providing jobs, houses, schools, and water taps and protecting the environment. The structure of contracts will vary, depending on the prevailing legal (formal) system, the social customs (informal), and the nature of the asset or resource involved in the exchange. Economic agents look for opportunities to reduce exchange costs, some of which may be illegal. For example, agents may omit several dimensions of exchange conditions from the contract, which could create disputes at a later stage. State involvement in supporting credible contracts and investment reduces the cost of exchange, particularly if the state uses its power systematically and predictably.

Contracts have been subject to extensive research, and numerous contractual options exist. NIE scholars have highlighted the critical role played by contracts and how the institutional environment influences them. Through various contractual arrangements, economic actors can organise production and economic exchange that would otherwise not be possible due to

limited information and the fear of opportunistic behaviour. An analysis of the nature of contracts in a society sheds light on the institutional environment that shapes human behaviour, relations and preferred economic activities.

2.6 THEORIES OF INSTITUTIONAL CHANGE

The previous sections have shown that institutions have the power to drive and determine the nature of change (Dacin et al., 2002; North, 1993). North (1990) observes a link between the past and future due to the continuation of societal institutions, and notes that past experiences influence the present and the future. As much as institutions change individuals and societal behaviour, they, too, change in character and power to influence behaviour in time and space (Dacin et al., 2002). Thus, institutional change “is the key to understanding historical change” (North, 1990, p. 3). North notes, furthermore, that the institutional environment has different levels of rules, which are ordered hierarchically, based on the transaction costs of change. The higher the level of the rules, the harder and costlier it is to change them (Greif & Kingston, 2011; North, 1990; Wegerich, 2001). In political rules, constitutions are at the high end, and they are designed to be more costly to change, followed by the statute and common laws, then specific bylaws. At the lower end are individual contracts (North, 1990), which are easier to change. Each rule depends on a set of higher-level rules that determine how it can change and who can participate in that process.

Scholars report that formal and informal rules can evolve organically, or by the design of individuals (Coccia, 2018; Kingston & Caballero, 2009; Zikos, 2020). The causes of change can be endogenous, such as a change in tastes or local demand or supply. Causes can also be exogenous, for example, new technology from external sources (Coccia, 2018). Thus, a price change may lead one or both parties in the exchange renegotiating the existing contract, which may require changing formal rules at a higher level. An interested party may find it worth investing resources to alter the rules or related enforcement mechanisms. In the case of informal rules, parties may choose to ignore a rule or they may introduce a new rule due to changing circumstances, which gradually becomes part of the accepted practice in society (North, 1990).

A wide variety of theories explain institutional change. Three main explanations exist: designed-based, evolutionary, and equilibrium perspective theories (Coccia, 2018). Design-based theories view change as an outcome of coordinated, deliberate design or political processes. The state sets the rules individuals and organisations engage with to their benefit.

Thus, through bargaining with different interest groups or because of pressure from collective action, authorities craft or modify rules, and keep them in line with the higher-level rules that govern their deliberations and decisions (Kingston & Caballero, 2009; Ostrom, 2005). Individuals consider the costs and benefits of a proposed institutional change based on their beliefs and the information at their disposal (bounded rationality). Sometimes, situations are misunderstood, and expected outcomes are misperceived. New knowledge can induce change, but when a society needs to deal with complex problems, individuals may act on incomplete information, leading to inefficient institutions persisting, which hinders productivity and economic growth (North, 1990; Wegerich, 2001). Greif (2006) observes that institutions are valuable for bringing about change only to the degree that they can alter people's interests and the knowledge that enables prevailing rules and contracts. As North (1990) argues, weak institutions remain unchanged when they are supported by powerful, influential stakeholders who act as gatekeepers for institutional change (Wegerich, 2001).

Evolutionary theories view institutional change as an uncoordinated, spontaneous evolutionary process (Coccia, 2018). Unlike design-based theories, no centralised structure or political process is followed when setting rules. Instead, individuals in a society make choices in an uncoordinated manner, and new rules emerge randomly. As Aoki (2006) states, institutionalised rules are constructed endogenously. While new institutions can become successful and spread in the community, weakened rules may fizzle out and disappear – a phenomenon called deinstitutionalisation (Coccia, 2018). The assumption is that ongoing competition weeds out inferior institutions and allow the most efficient ones to emerge (North, 1990). This approach, however, fails to explain why some weak institutions seem to persevere, or why societies with weak institutions fail to adopt institutions that have proved to be successful in other societies (Kingston & Caballero, 2009; North, 1990). Informal rules, in particular, change slowly and in a decentralised way, and are the main drivers of institutional change (Coccia, 2018; North, 1990).

Equilibrium approaches follow the institutions-as-equilibria perspective of defining institutions, which says that it is not the rules, but the behaviour or expected behaviour of others that induce people to follow a particular way of behaviour (Greif & Kingston, 2011). It emphasises that individuals influence each other's behaviour in a society, resulting in rational behaviour in a social situation. In other words, an individual opts to take action expected of them (Greif, 2006). An equilibrium is a given set of formal and informal constraints and enforcement mechanisms. This institutions-as-equilibria approach shifts the focus from

considering institutions as rules designed to prescribe behaviour in a society, to rules being devices for coordinating the shared set of beliefs and expected behaviour. Hence, institutional change results from changing expectations, and not changing rules (Ackermann et al., 2018). Disrupting this equilibrium from exogenous forces, such as changes in technology, tastes, or preferences, can force individuals and organisations to change the ‘rules of the game’ (Coccia, 2018; Greif, 2006). North (1990) argues that there is more than one equilibrium (multiple equilibria) in any situation– a variety in institutionalised patterns of human interactions.

Institutions are interdependent, sometimes mutually reinforcing, and they change differently for the three groups outlined above. Kingston and Caballero (2009) highlight that some institutions can resist change, and some are path-dependent, and determined by historical decisions or experiences. Path dependency makes decisions based on previous habits, rather than current conditions. Society may resist change even when better options are available, sometimes due to the transaction costs entailed. Sometimes, individuals or organisations are goal-dependent, and work towards a goal to achieve the desired change. A change of rules may enhance socioeconomic welfare or may have adverse effects on certain groups or society in general. Wegerich (2001) highlights the importance of understanding and accommodating power structures in policy development. A strong state that can reach the local levels and enable participatory processes is necessary. Also, local communities must be empowered to understand and critically analyse the status quo, including questioning power structures and finding alternatives (Wegerich, 2001).

Some scholars view change as resulting from the interaction of formal and informal rules. When informal institutional changes become incompatible with formal institutions, pressure builds up, and periodically results in sudden or considerable changes in formal rules (Roland, 2004). Institutions are complex, hence, the need to understand them to predict their outcomes and impact on society.

2.7 NEW INSTITUTIONAL ECONOMICS AND DEVELOPMENT

NIE uses a bottom-up approach to economic analysis by examining the nature and characteristics of transactions and attributes of the different governance and contractual arrangements. The roles of institutions in development processes are many and may change over time. What may seem to be similar formal institutions may play different roles in development processes within a country and from country to country (Mkandawire, 2009). The

most critical role of institutions in any economy is to ensure the credibility of policies, which is crucial for any investment (Mkandawire, 2009). Institutions set the ground rules of society, determine how to organise access to resources, how actors can interact, and the costs of interactions. According to Mkandawire (2009, p. iii), experience shows that “institutions do not monotonically map onto any one set of policies nor do certain policies require a specific set of institutions”.

2.7.1 How institutions support economic development

Ferrini (2012) identifies four ways institutions support economic development: determining the cost of economic transactions, the degree of appropriability of return to investment, the level of oppression and expropriation, and the ability to cooperate.

Economic transactions include transaction costs, such as information searching costs, bargaining and decision costs, and monitoring and enforcement costs. Institutions provide a justice system, enable the enforcement of the law and regulations, and encourage trust among actors. Trust reduces uncertainties, complexity and transaction costs and enables cooperation and progress in community development (Ferrini, 2012; Zikos, 2020). Effective institutions reduce costs, thus, stimulating trade. Shirley (2005) echoes North’s view that institutions mirror the dominant beliefs of societies and their understanding of the way the world works (Shirley, 2005). Often, the mechanisms for enforcing formal rules in developing countries are weak, and communities rely mainly on social norms and networks (informal rules) to ensure that actors comply with contractual agreements. Economic actors can sign contracts with terms and conditions, where necessary, agree on codes of conduct, and use standard weights, measures, costs, and enforcement methods.

The degree of appropriability of investment return refers to a situation where property rights are protected. For example, when land tenure is assured, economic actors are willing to invest, thereby promoting economic development. The government has a role to protect property rights and collect revenue through taxes and levies, which people must be willing to pay.

The level of oppression and expropriation refers to the power of the government and those in power to abuse resources owned by individuals and the community. Effective institutions create an environment in which economic exchanges can be predicted and reduce governments’ discretionary space to do as they wish or withdraw from prior commitments (Mkandawire, 2009). Furthermore, institutions determine the ability of individuals to access information and

economic opportunities to improve their livelihoods, hold leaders to account, to ensure that regulations and systems are in place to reduce inequality, malpractices and misappropriation of public resources, and whether the environment is favourable for cooperation and the growth of social capital.

Institutions that support development invest sufficiently in education, health and infrastructure, increase trust in the community and allow freedom of expression and association.

2.7.2 Weak institutions, weak states

Through different development programmes, many developing countries have implemented strategies that have done little to alleviate societal problems. NIE scholars attribute this failure to weak institutions and believes that countries need institutional frameworks that support a market economy to develop their economies (Shirley, 2005). As referred to in Section 2.2, two categories of institutions are essential for economic growth: institutions that promote economic exchange and those that encourage trust. The first category includes institutions that reduce transaction costs, promote innovation, and enable credible contracting, contract enforcement, norms, and beliefs supporting economic growth. The second category refers to institutions that are capable of influencing powerful actors, including the state, and protecting people's rights and private property rather than using power for personal or political gains. This category includes constitutions, laws that protect rights, freedom of speech, electoral rules, and an active citizenry that monitors government (Shirley, 2005). Thus, the political process is central to how economies perform and explains why economies differ. NIE highlights the crucial role of transaction costs and accepts that economic actors seek opportunities to reduce these costs.

Scholars distinguish between *de jure* and *de facto* political power (Acemoglu & Robinson, 2008). *De jure* political power refers to formal rules in the political sphere, while *de facto* political power refers to power not allocated by formal rules, but observed in practice. With *de facto* political power, rich individuals or groups can use their economic resources to create or sustain political institutions. Hence, changing institutions (reform) is often difficult, because powerful forces are working behind the scenes to fortify the status quo (Acemoglu & Robinson, 2008).

North (1990) points out that the cost of transacting in a developing economy is much higher than that of a developed economy. Sometimes, the costs are too high, thereby making transacting an unviable option. For example, transaction costs rise when services provided by

the state or the private sector are poor, infrastructure such as roads, communication, water, and electricity are unreliable, and bureaucracies are inefficient. This situation is often due to insecure property rights, laws that poorly enforced, barriers to entry, and monopolistic restrictions (North, 1990). Therefore, firms fail to grow, and their fixed capital remains small. Large firms often survive under government protection by taking advantage of subsidies, tariff protection, and payments to those with political power.

2.7.3 Credible commitments promote economic growth

States must create environments that offer credible commitments and encourage investments that promote economic growth. In addition to considering opportunities provided by the state, a prospective investor will assess the disincentives emanating from the control mechanisms, including “taxation; input controls; operating requirements; reporting requirements; the rate of return limitations; price, output, and effluent controls; and other bureaucratic and oversight practices” (Williamson, 1995, p. 181). Conditions prevailing in the institutional environment will determine the kind of investments that emerge and flourish in an economy, including the quality, quantity, durability and level of technology of the investments. When transactional costs are significant, economic actors will seek information to find ways to reduce them. Reducing transactional costs may entail innovation, for instance, using science and technology to improve efficiency, specialisation, vertical integration, lateral growth, or completely changing the kind of goods or services provided.

As countries grow their economies and become more complex and interdependent, they create institutions that allow anonymous and impersonal exchanges, and enable them (countries) to extend their networks and trade globally (North, 1993). By using written rules and agreements, economic actors can trade with strangers and grow their businesses (Shirley, 2005). Although globalisation has expanded trade opportunities for some businesses, it has made competition harder and capital flight easy, thereby creating uncertainties, especially in weak states. Economic actors that are determined to compete favourably, locally or globally, equip themselves to take on complex contracting, invest in skills and knowledge development, use technology to improve efficiency, and reduce information costs in their production and transaction processes. Issues of opportunism, uncertainty and asset specificity play a central role in business decisions. Long-term investments will happen if there is political stability and effective law enforcement. Weak economies have high investment risks and are likely to attract small, short-term, less specialised investments, and allow the investor to terminate or relocate

operations quickly (Williamson, 1995). How quickly businesses adapt will determine the economic growth rate in a country, and the direction of the economy (North, 1993). Societies may transform due to globalisation, urbanisation, natural and human-made disasters, conflict and other insecurities that affect families' survival. Failure to adapt impedes economic growth and leads to stagnation.

2.7.4 Strong states enforce contracts and laws

States must be powerful enough to enforce contracts, protect property rights, ensure stability and peace, and ensure that both parliament and the judiciary operate independently (Shirley, 2005). The proper functioning of the state, parliament and judiciary keeps transaction costs down, harmonises political power, and creates positive consumer and investor confidence and employment opportunities. The state has a significant role in ensuring that appropriate laws and structures are in place to settle all kinds of disputes effectively. Thus, far-sighted states will acknowledge that institutions matter and will create structures that solve fundamental economic problems and support credible contracting and investments (Williamson, 1995). Institutional monocropping, where best practices are simply borrowed from Western economies to address problems in the Third World, has proved ineffective (Mkandawire, 2009).

States face the challenge of understanding the dynamics of economic change, formulating policies that can develop and reform economic and political institutions, and creating enforcement mechanisms that can address societal problems and bring about the desired change (North, 1993). Formal institutions can change quickly, but informal institutions change gradually because of their embedded norms, customs, values and beliefs (North, 1993; Roland, 2004; Williamson, 2000). Informal rules are central to development and unique to a society, which explains why formal institutions that are successful in developed countries fail when transferred to the Global South. North (1993) emphasises politics as essential to economies' performance, because they define and enforce the game's rules.

2.8 CRITICISMS OF NEW INSTITUTIONAL ECONOMICS

A uniform theoretical approach to institutions has evaded NIE. The concept of institutions is ambiguous and, therefore, open to different interpretations. NIE requires the use of a mix of techniques in its applications. The approach entails emphasising both the theoretical content of

models and mathematical concepts, and less formal practices (using less mathematical concepts instead of literary presentations) that study the complex nature of institutions and human behaviour (Rutherford, 1994). The ability of NIE to bring together diverse contributors has enriched development theory and created conflicting theories and even definitions of institutions (Ménard & Shirley, 2012). Several shortcomings surfaced as the field gained prominence and increasingly influenced development thinking globally.

NIE has been enriched through its diversity, but is viewed by critics as inconsistent and lacking in identity (Ménard, 2004, cited by Brousseau & Glachant, 2008). As a movement, the challenge facing NIE is to strengthen unity in its diversity and to differentiate institutional economic fields and methodologies that form part of the NIE (Brousseau & Glachant, 2008). This challenge is difficult, because it involves many methodological problems, and one size does not fit all (Brousseau & Glachant, 2008). Rutherford (1994) identifies two categories of NIE contributors: the formalists and the 'literary'. The formalists mainly focus on rigorous formal modelling, which includes the use of mathematical analysis. The literary group uses empirical studies and less formal approaches to understand the complexities of institutions. Coase, North, and Williamson's approaches are in the literary category (Rutherford, 1994). Coase, for example, advocates for studying "man acting with constraints imposed by real institutions" and describes the neoclassical assumption that "man is a rational utility maximiser" as both "unnecessary and misleading" (Richter, 2005; Rutherford, 1994, p. 22). Coase, furthermore, advocates for empirical investigations in the early stages of studies, and applying mathematical analysis in the later stages.

Since many NIE issues are relatively new, the existing statistical systems cannot provide all the required data. For example, Sykuta (2008) describes NIE definitions and concepts as poorly defined and difficult to measure, because of, among other reasons, weaknesses in NIE methodologies and empirical applications and reliance on neoclassical models. The use of ad hoc, incomplete databases by NIE raises concerns about the reliability and replicability of theories (Sykuta, 2008). Hence, NIE focuses on processing existing data and finding new data sets. Ménard and Shirley (2012) draw attention to the need for greater explanation of informal institutions in the theories and empirical studies. Eggertsson (2013) echoes this view and highlights the lack of a convincing explanation of the life cycle of social norms. Concept definitions need refinement to avoid ambiguity, and NIE researchers must be flexible and adopt new techniques appropriate to their studies. Ménard and Shirley (2012) state that the emphasis by NIE on realism has complicated modelling. NIE scholars have undertaken to address these

challenges, which will enhance its contribution to understanding further how the economic system works (Brousseau & Glachant, 2008). Theories that compete with NIE give scholars opportunities to consider alternatives from different disciplines, in order to develop enhanced and robust research techniques (Sykuta, 2008).

Most NIE studies have focused on developed economies and have limited applicability in the Global South (North, 1993). Hence, NIE shortcomings are more visible in weak economies, especially in sub-Saharan Africa. In a working paper to the Commission on Growth and Development, Acemoglu and Robinson (2008) argue that differences in economic institutions are the main reason why some economies progress while others fail. They recommended institutional reform as a critical factor for solving this developmental problem and emphasise the need to understand why institutions in developing countries are dysfunctional. Global organisations such as the International Monetary Fund, the World Bank and non-profit organisations funding development projects in sub-Saharan Africa have embraced NIE theory. These organisations highlight the importance of institutions such as good governance (Schneider & Nega, 2016). Ineffective legal systems and inadequate contractual enforcement in developing countries discourage investment and credit (Mkandawire, 2009). As a result of this recognition, there has been a shift towards institutional reform, protection of property rights, and attempts to enhance governance mechanisms and fight corruption. Acknowledging the importance of institutions in economic growth has influenced development strategies adopted by developing countries, with some policies having proved inappropriate for sub-Saharan Africa (Mkandawire, 2009; Schneider & Nega, 2016).

Schneider and Nega (2016) highlight three limitations of NIE: its narrow interpretation of institutions, its over-reliance on analysis of transaction costs and property rights, and its ahistorical attachment to markets and private sector firms as significant development engines. The notion that property rights are the most critical institution in development processes is questionable (Schneider & Nega, 2016). Although property rights have proved central to economic growth in developed economies, efforts to secure property rights in sub-Saharan Africa have damaged many societies. The peculiar configuration of property rights means that land ownership and land use in sub-Saharan Africa remain critical issues that only institutional change can address. Corruption and unfair practices often dominate property rights in sub-Saharan Africa, and it has detrimental effects on specific groups, such as women and pastoralists, who find it challenging to own and access land. As a result of unfair practices, only a few people enjoy the benefits accruing from the available resources (Schneider & Nega,

2016). Establishing formal property rights has caused conflict in many sub-Saharan African countries and has not created opportunities for economic growth. Schneider and Nega (2016) contend that NIE can be adapted to suit the sub-Saharan African context. What is required is a more complex analysis of property rights and sub-Saharan Africa, and development programmes designed to address poverty and inequality and promote state-led development. Schneider and Nega (2016) cite Chang's (2011, p. 476) suggestion that such efforts should promote economic development to improve institutions, rather than vice versa.

2.9 CONCLUSION

Overall, NIE has seen remarkable progress, and has brought together diverse disciplines to study institutions. NIE work has highlighted the importance of institutions in economic systems and the way they influence the actions of individuals and companies by applying a bottom-up approach to economic organisation. It has demonstrated that economic analysis is possible down to the transaction level. It has enabled social scientists to delve into complex issues that affect economic activities, such as the existence and relevance of transaction costs, property rights and contractual relations. NIE has also provided tools for comparative analysis of economies at all levels of society (individual, organisation and institution), and a better understanding of the many underlying institutions that affect how economic agents act and interact. It has also enabled researchers to understand the complicated relationship between institutions and human behaviour using less formal approaches, including empirical testing and analysis. Thus, progress has been made, despite a lack of consensus on the definitions of concepts and theories. This chapter noted the limitations of applying NIE in the Global South, highlighting its limitations in weak economies. Although challenges still exist, there are opportunities to develop enhanced, rigorous research techniques and increasingly adopt NIE to suit sub-Saharan African economies. Global organisations like the World Bank and the IMF advocate for institutional reforms and intensifying efforts to improve governance and combat poverty.

The knowledge generated by NIE scholars informs options for conducting social analyses using an institutional approach. For example, NIE analytical theories and tools can be used to understand the context and contractual obligations present in the West Rand, and the way these have responded to mine closures. Williamson's analytical framework for social analysis, in particular, is useful for analysing the political, social and legal ground rules as stipulated by the formal documents, including the Constitution, government and municipal documents

(policies, plans, and reports), the role of the judiciary and bureaucracy in economic activities. This exercise seeks, in particular, to understand how the institutional environment has changed over time, and the rules governing property rights and the rights of a contract.

Understanding the institutional arrangements of the West Rand entails analysing the different modes of governance in the area, why these are the preferred options, and factors influencing change, such as technology and globalisation, also, how the different economic units adapt to the changing environment, how they cooperate or compete, and how they influence or change the rules of the game, including the various laws, property rights, and contractual agreements between different actors. An analysis of governance arrangements should also examine transaction costs, how they influence the economic system, and how different actors try to reduce or avoid them (transaction costs). Finally, it is also crucial to analyse the government's role in defining and enforcing the rules and supporting credible commitments and investments.

The concept and theoretical framework of NIE can guide a contextual analysis of the West Rand and suggest action for the micro-level and institutional support for credible contracting and investments. Institutional changes pose a challenge to economic development. The shrinking cities theoretical framework will be discussed in the next chapter.

CHAPTER 3: SHRINKING CITIES: A THEORETICAL FRAMEWORK

3.1 INTRODUCTION

The previous chapter explained how NIE highlights the role of institutions in economic processes. Scholars have adopted ideas from various disciplines and developed analytical tools to explain economic change down to the transaction level. Formal and informal rules (institutions) shape economies and determine the rate and direction of economic growth of neighbourhoods, countries and regions. Where institutions are effective and capable of adapting to changing circumstances, economies will provide stability and sustained growth, enforce property rights and credible commitments, and attract skills and investments. As a result, positive social change occurs, and urban areas can grow and expand, attract population and advance economic growth. Negative social change, in turn, propels urban decline globally, due to a range of economic and social problems that cause out-migration.

Cities in the Global South are growing rapidly, which places pressure on municipalities to expand their infrastructure to accommodate the rapidly increasing population and economic activities. Africa's population, for example, is expected to triple by 2050, when an estimated 1.3 billion people will be living in cities (Van Noorloos & Kloosterboer, 2018). Such an increase means that African cities will have to provide infrastructure and other critical services for their growing number of residents while clearing the current backlogs of services and housing. African cities must develop plans to address these backlogs and uplift livelihoods and welfare.

In contrast, developed countries have cities that are experiencing out-migration, as people leave seeking better economic opportunities and living conditions. People and businesses abandon commercial and residential buildings, which adversely affects the ability of these cities to generate income (Weaver et al., 2017). The persistent decline in the urban population is a manifestation of the shrinking cities phenomenon. Shrinking cities are a predominantly developed-country phenomenon and much more prevalent in Europe than in the USA, but examples also exist in developing countries (Cunningham-Sabot et al., 2013; Fol & Cunningham-Sabot, 2010).

The State of the World Cities 2008/9 report (UN-Habitat, 2008) shows that 60% of all shrinking cities in the developing world are in Asian cities, mainly in China and India. Also, population decline in Latin America and the Caribbean cities (mostly Brazil, Mexico and Venezuela), is mainly attributed to urban sprawl and increasing suburbanisation. In Africa, decline is mostly in small cities and closely associated with war, disasters, or civil conflicts as well as unemployment and the high cost of living in urban areas. In addition, African cities, experience a shortage of built environment professionals and depend on poor and outdated planning systems inherited from the colonial period (Blanco, et al., 2009). The shortage of professions and good planning practice, coupled with a high dependency on the informal sector has led to unplanned growth of African cities. Thus, alternative planning strategies are necessary to facilitate adequate urban planning (Blanco, et al., 2009) and avoid the devastating impacts of mine closures in resource towns, which often fail to diversify their economies (Matebesi, Marais, & Nel, 2024).

Studies show a link between the population of an area, the size of its economy and the built environment (Weaver et al., 2017). Ideally, as a city's population increases, its tax base and revenue grow, and its ability to provide employment opportunities attracts more people, causing an upward economic spiral (Cunningham-Sabot et al., 2013). In contrast, a decrease in population implies a dwindling tax base and less revenue for a city, which reduces its capacity to provide infrastructure and job opportunities. The city fails to adapt to its changing circumstances, which affects its ability to provide the quantity and quality of services its residents require (Weaver et al., 2017). The poor performance of the city leads to even more out-migration and a downward economic spiral as the tax revenue decreases. Researchers and planners have examined declining communities for over a century and have reported that urban decline could take place whether a population is growing, decreasing or stable (Weaver et al., 2017). Urbanisation of the poor, for example, does not result in additional revenue for the city, but could create challenges for cities. Hence, cities need to plan and manage the effects of urbanisation on poverty, employment, service provision and the political environment.

Urban shrinkage, in turn, is a relatively new area of study, having only appeared in literature and media in the 1990s. Initiatives such as the Shrinking Cities International Research Network have raised awareness about shrinking cities (Marais & De Lange, 2020; Pallagst et al., 2014). This chapter will examine the shrinking cities phenomenon. It will start by considering the various definitions and characteristics of a shrinking city and then identify some of the causes of this phenomenon and its manifestations in various communities. Theoretical interpretations

of the shrinkage phenomenon will be outlined, based on the observations of different scholars. The impact of the shrinking cities phenomenon on the urban landscape will be presented, and followed by a discussion on paradigm shifts in planning and policy strategies.

3.2 DEFINITIONS AND CHARACTERISTICS OF A SHRINKING CITY

3.2.1 Historical background

The term shrinkage was first used by urban economist Mabel Walker in 1947 when they addressed the Municipal Finance Officers Association in New York (Stradling, 2017). According to Stradling (2017), Walker had observed from census data that the population in North American cities was decreasing, attributed the decline to decentralising residential and employment opportunities and urged planners and politicians not to work against the people's will (Stradling, 2017).

In the 1970s, scholars started to use the term shrinking to describe cities that were declining because of deindustrialisation and suburbanisation (Cunningham-Sabot et al., 2013). Studies of shrinking cities have since been on the increase. Mykhnenko and Turok's (2008) study of the 150 cities in Europe during the period 1960–2005 found a population decline in 75% of the cities, which they attributed to general demographic decline, such as fertility rates and international out-migration. Interest in shrinking cities has increased significantly, although no universal definition of shrinkage exists. Instead, scholars use several definitions to describe this phenomenon (Pallagst et al., 2014; Silva et al., 2015).

3.2.2 Definitions of urban shrinkage

Most definitions of urban shrinkage refer to population decline (Silva et al., 2015), though emphasis on the various dimensions and measuring instruments associated with shrinkage is increasing. Initial definitions emphasised the hollowing-out of the city centre (Wiechmann & Pallagst, 2012). In population terms, shrinkage refers to “sustained, downward, quantitative adjustments to the population of a given geographic community” (Weaver et al., 2017, p. 3). However, the dimensions of shrinkage have expanded since the early definitions. Weaver et al. (2017) argue that shrinkage involves a reduction in the size of the economy and the built environment. Cunningham-Sabot et al. (2013, p. 14) add a social aspect when defining shrinkage: “an urban area that has experienced population loss, economic downturn and social problems as symptoms of a structural crisis”. Sousa (2010, p. 54, cited by Silva et al., 2015, p.

7), emphasise spatiality in the shrinkage by stating that shrinking cities are also referred to as “territories experiencing population decrease due to various reasons, and that may or may not have started to shrink spatially”. Shrinking Cities International Research Network defines a shrinking city as “a densely populated urban area with a minimum population of ten thousand residents that have faced population losses in large parts for more than two years and is undergoing an economic transformation with some symptoms of a structural crisis” (Pallagst et al., 2014, p. 6).

The range of definitions above shows that shrinkage is a multidimensional phenomenon and a complex process that is happening globally, in multiple ways, caused by various factors and following no universal pattern (Pallagst et al., 2014). Until the 1980s, shrinkage applied only to developed countries, but it has become increasingly evident in developing countries since the 1990s (Fol & Cunningham-Sabot, 2010).

3.2.3 Shrinkage at the neighbourhood level

Some scholars also focus the definition of shrinkage on the neighbourhood level. Some neighbourhoods may experience a population decline, but this does not mean it is shrinking (Silva et al., 2015; Weaver et al., 2017). Therefore, analysis of data pertaining to neighbourhoods is necessary for planners and policymakers to take appropriate action. It is possible to use longitudinal data to identify trends of decline or to determine whether a neighbourhood is stable or shrinking. Scholars link the concepts of distress and disadvantage to shrinkage. Weaver et al. (2017, p. 35) describe distress as “the degree to which a community is vulnerable to detrimental change”. Distressed communities fail to adapt because the disadvantages they face make it difficult to make appropriate changes (Weaver et al. 2017, p. 35). Therefore, the more disadvantages there are in a neighbourhood, the more vulnerable it is to distress. People and businesses may abandon buildings in the adversely affected areas because the property owners fail to meet their ownership responsibilities (maintenance, taxpaying, and occupancy) (Weaver et al., 2017).

3.2.4 Categorising shrinking cities by causes of decline

It is possible to categorise shrinking cities by causes of decline, which may be a combination of economic, suburbanisation, structural, environmental and demographic changes. Demographic factors include decreased fertility rates and increased life expectancy (Mykhnenko & Turok, 2008). Other categories include a focus on deindustrialisation (Frazier

& Bagchi-Sen, 2015; Pallagst et al., 2014; Stryjakiewicz, 2013), wars and disasters (natural or human-induced) and the end of socialist systems (in Eastern Europe and Russia) (Audirac, 2018; Hollander et al., 2009). The impact of these factors varies from one urban area to another, often manifesting very different characteristics determined by the regional, national and local context. Despite these different categories, research shows similar patterns of shrinkage (Pallagst et al., 2014).

Shrinkage is not linear, and its causes are complex, and referred to as “socio-spatial manifestations of the forces of globalisation” (Pallagst et al., 2014, p. 3). Pallagst et al. (2014) point out that urban decline or shrinkage is unlikely to affect whole settlements. Scholars note that growth and shrinkage may occur concurrently in the same locality (Silva et al., 2015). Even in settlements with high out-migration, some neighbourhoods may continue to grow or thrive. Hence, it is essential to study shrinkage patterns by investigating population loss and the economy and built environment (Weaver et al., 2017).

3.2.5 Shrinkage and economic decline

Urban shrinkage leads to economic decline and the loss of employment opportunities, the population moves out of the city and there is a shift in the affected economy, from predominantly manufacturing or mining centres to service provision (Haase et al., 2014). Urban shrinkage often relates to the hollowing-out processes that occur in urban centres, that are caused by suburbanisation and urban sprawl. The decline adversely affects the city’s ability to generate income, attract investments, and increase its tax base. Researchers use terms such as decline, decay, blight, abandonment, disurbanisation and urban crisis (Haase et al., 2014). The stigma attached to a shrinking city exacerbates the situation, making it difficult to attract new investments, thus, intensifying the decline process. Cunningham-Sabot et al. (2013) argue that the term is not only new, but it also refers to a process that is partly new in relation to how it comes about, its causes, manifestation and socioeconomic implications. The forces that bring about shrinkage are interrelated and closely linked to globalisation. Cunningham-Sabot et al. (2013, p. 23) argue that “shrinking cities are not only the neglected side effects of globalisation but also, more precisely, the vivid illustration of globalisation”. According to Cunningham-Sabot et al. (2013), this new phenomenon must be addressed with a new, global approach.

Shrinking cities grapple with numerous challenges due to the complexities and uncertainties of the downswing processes; furthermore, some factors hinder turnaround strategies. The effects are multifaceted, and the responses to the decline are diverse. While some cities can rebound

from a decline in their turnaround strategies, others cannot stop the decline. Scholars emphasise the need for planning, for instance, planning for growth, and to develop appropriate development policies and programmes (Pallagst et al., 2014). However, when the city's economic activities and resources are on the decline, which may be the case in poor communities, it is "difficult to juggle the demands of justice, growth and the environment" (Campbell, 1996, in Pallagst et al., 2014:5). Thus, although planning is critical, the city may not be in a position to prioritise planning, as required (Hollander & Ne'meth, 2011). Often, such areas are prone to conflict, which may exacerbate the situation.

Usually, research views shrinkage as a negative consequence of loss of economic activities and opportunities, but Pallagst et al. (2014) argue that such decline may bring benefits. For example, it may result in less pollution and improved quality of life in the city. For example, a study of German cities conducted by Delken (2008) found that living in a shrinking city does not mean having lower life satisfaction. The study also found that freedom, equality and social networks seemed to be more important for the inhabitants of shrinking cities than having access to plenty of facilities were (Delken, 2008).

3.3 THEORETICAL INTERPRETATIONS OF URBAN DECLINE

Urban scholars have, in the past, used various concepts to explain the transformation of cities. Scholars have analysed the causes and manifestations of urban decline and applied this information to develop urban policies to revive affected economies. While many interpretations looked towards boosting economic activities, others were based on an anti-urban ideology, which is critical of urban life, as it opposes high densities and attributes the breakdown in traditional communities and social life to urbanisation (Fol & Cunningham-Sabot, 2010). This section will summarise interpretations of urban decline.

3.3.1 Linear evolution theories

Some urban scholars see the life of a city as a linear evolution, and the decline is an integral part of this human settlement. The city is described as organic, and could grow, stagnate, decline and finally disappear (Cunningham-Sabot et al. 2016). According to Spengler (1931), cities as centres of civilisation are growing or declining at any given time and are destined to end. Lewis Mumford (1961) had a robust anti-urbanist perspective and attributed the city's decline to its physical and social evils (Fol & Cunningham-Sabot, 2010; Cunningham-Sabot et

al., 2016). Mumford coined terms to describe the different stages of a city, namely, “the city, Eopolis, becomes Polis and then grows to Metropolis, begins its decline as it becomes Parasitopolis, then Pathopolis, Tyrannopolis and finally Necropolis, ‘city of the dead,’ the ‘final graveyard’ for every civilisation” (Fol & Cunningham-Sabot, 2010, p. 365). The negative connotation attached to urban life is the result of overcrowding, high concentrations of poor and minority ethnic groups, intolerance and racism that characterised cities in the United States and Europe.

3.3.2 Life-cycle theories

Some scholars view transformation of the city as a cyclical process, as the decline is an inevitable process of its growth, or cycle (Fol & Cunningham-Sabot, 2010; Cunningham-Sabot et al., 2013). The Chicago School of Sociology originally posited that cyclical theories underpin urban decline as life-cycle experiences. Instead of envisioning decline that leads to the ‘death’ of a city, they saw a revival after a period of decline (Cunningham-Sabot et al., 2013). The cycles resulted from the economic growth patterns of a city, which, in turn, depended on technological changes. According to life cycle theory, an increase in technology and innovation determined a city's growth rate. New concentrations of innovation and technology could result in new growth centres. Introducing new technology and innovation would mean that old technology becomes obsolete and adversely affecting ‘old’ industries and causing a decline in traditional centres. While new centres and regions adapt to new technology and thrive (boom), the ‘old’ centres and regions lose economic activities and decline (bust). A new cycle begins as ‘new’ centres grow, which stagnate and later also go through the decline stage (Cunningham-Sabot et al., 2013). Thus, this framework recognises local and regional economic centres that go through boom and bust cycles as normal.

The idea of cyclical renewal is also part of the resilience concept based on the adaptive cycle popularised by Gunderson and Holling (Holling, 2001). The adaptive cycle considers three properties of an ecosystem: wealth, which determines the potential and limits what is possible; controllability, which determines the extent to which it can control its destiny; and adaptive capacity, which is how vulnerable the system is to unexpected disturbances. Over time, the potential of an ecosystem could accumulate from skills, networks of human relationships and mutual trust. Connectedness also increases and may reach over-connectedness, and become rigid and vulnerable to disturbances or shocks. The wealth accumulated can then intervene to avoid, correct or change the situation. So, on the one hand, the cycle is growth and stability; on

the other, it is change and variety. Major shocks may change the economic landscape (Martin, 2012).

Some scholars believe neighbourhoods go through the same typical life cycle, with distinct stages starting when they are new (infant) and continuing to when they are old or outdated (aged). Several neighbourhood life cycles were developed, including those illustrated in Table 3.1. The US Home Owners' Loan Corp. residential security maps (1935, in Metzger, 2000) identified four stages, starting from when the neighbourhood was well-planned and had a homogenous population. Over time, a neighbourhood stabilises and gradually regresses into a state of decline characterised by predominantly low-income rental housing. A later study, in 1940, came up with five stages, the first being a newly constructed residential neighbourhood stage, progressing to a slum area with houses with depreciated values and multiple social problems (Metzger, 2000).

In a study conducted for the Regional Plan Association of New York in 1959 (in Metzger, 2000), urban economists Edgar M. Hoover and Raymond Vernon identified five stages of neighbourhood development. They concluded that decline was inevitable (Metzger, 2000). The stages illustrated in the third column of Table 3.1 are new development, transition, downgrading, thinning-out, and renewal. Metzger (2000) also refers to five similar steps outlined by the Real Estate Research Corporation (1975), which shows a continuum starting from a healthy neighbourhood, followed by an incipient decline, clearly decline, accelerating decline, and eventual abandonment. The response of planners and policymakers is to halt or reverse what was perceived as a natural process (Hollander et al., 2009).

Table 3.1: The stages of Neighbourhood change: The evolution of the life-cycle theory, 1935 to 1975

US Home Owners' Loan Corp. Residential Security Maps (1935)	US Home Owners' Loan Corp. <i>Waverly: A study in neighbourhood conservation</i> (1940)	Edgar M. Hoover and Raymond Vernon <i>Anatomy of a metropolis: The Changing Distribution of People and Jobs within the New York Metropolitan Region</i> (Regional Plan Association of New York, 1959)	Real Estate Research Corporation <i>The dynamics of neighborhood change</i> (US Department of Housing and Urban Development, 1975)
<i>First Grade "A" Area</i> (green) A well-planned, homogeneous population	<i>First Stage</i> New residential construction	<i>Stage 1</i> Single-family residential development	<i>Stage 1: Healthy</i> Homogeneous housing and moderate to upper income, insurance and conventional financing available
<i>Second Grade "B" Area</i> (blue) Completely developed, stable	<i>Second Stage</i> Normal use and maintenance	<i>Stage 2</i> Transition to higher density apartment construction	<i>Stage 2: Incipient Decline</i> Ageing housing, the decline in income and education level, the influx of middle-income minorities, fear of racial transition
<i>Third Grade "C" Area</i> (yellow) In transition and decline from age, obsolescence, lack of restrictions, lower household incomes and housing values, lack of homogeneity	<i>Third Stage</i> Age, obsolescence, structural neglect	<i>Stage 3</i> Downgrading to accommodate higher density through conversion and overcrowding of existing structures, spread of ethnic and minority districts	<i>Stage 3: Declining</i> Higher density, visible deterioration, decrease in White in-movers, more minority children in schools, mostly rental housing, problems in securing insurance and financing
<i>Fourth Grade "D" Area</i> (red) The final stage of decline, mostly low-income rental housing, "undesirable population"	<i>Fourth Stage</i> Falling investment and rent values, neglect of maintenance, district-wide deterioration	<i>Stage 4</i> Thinning-out or 'shrinkage' characterised by population loss and decline in housing units	<i>Stage 4: Accelerating Decline</i> Increasing vacancies, predominantly low-income and minority tenants or elderly ethnics, high unemployment, fear of crime, no insurance or institutional financing available, declining public services, absentee-owned properties
	<i>Fifth Stage</i> Slum area with depreciated values, substandard housing, social problem	<i>Stage 5</i> Renewal through public intervention, redevelopment and replacement of obsolete housing with new multifamily apartments	<i>Stage 5: Abandoned</i> Severe dilapidation, poverty and squatters, high crime and arson, negative cash flow from buildings

Source: Adapted from Metzger (2000, p. 9)

Some scholars (Bone, 1998; Bradbury & St-Martin, 1983; Bruce et al., 2005) refer to Rex Lucas' four stages of community development of single-industry towns and regions across Canada, namely (i) construction, (ii) recruitment of citizens, (iii) transition, and (iv) maturity.

According to Rex Lucas' definition, a single-industry town (such as mining towns) or region has "less than 30,000 people and where 75 per cent of the workforce is employed in one industry" (Bradbury & St-Martin, 1983). During the first two stages, the local population grows rapidly, due to the discovery of a resource or a new opportunity becoming available. With this model, there is an influx of people, mostly young men and families of different ethnic groups. This is typical of boomtowns, and characterised by transient, youthful, masculine populations (Dugmore, 2010). Initially, construction of residential and commercial buildings is on the increase. The primary employer is in control of the administration of the town/region. Some people choose to settle in the town/region, while others may leave due to limited employment opportunities; community life starts for those who stay behind.

During the transition stage, people become more committed and involved in community life, and take on more responsibilities from the primary employer. In the maturity stage, there is less mobility in the adult workforce, an increase in the number of retirees and an increase in out-migration by the youth. Following Lucas, Bradbury and St-Martin added a fifth stage, the winding down, and a sixth stage, referred to as closure, both of which disrupt community life – affecting the low-skilled and poorly resourced communities in particular (Bradbury & St-Martin, 1983; Bruce et al., 2005). The winding-down stage is characterised by a decline in the primary employer's activities, economic opportunities in general, and subsequent out-migration, mainly of the youth and skilled people. Development stages are not linear. Also, winding down could be temporary, because people hope for more favourable economic conditions, but could lead to permanent closure if the primary employer decides to close or abandon the business. However, innovative strategies and technological development may prevent closure and enable economic transformation by, for example, moving from resource extraction to manufacturing. Although winding down can happen at any stage of community development, its impacts are likely to be harsher in a mature community (Bradbury & St-Martin, 1983).

Robert Bone (1998) also developed a life-cycle model, and focused mainly on changes in the size of the population of resource towns over a given period. Bone (1998) argues that population sizes indicate the production level and economic and public activities of an area. Given that data on population sizes are generally available, it is possible to make comparisons over a given period. According to Bone, the population size of a resource town goes through five stages: uninhabited site, a sharp increase in population size, population size stable, a sharp decrease in population size, and population size returns to zero. Resource towns with such

predictable population sizes are the classic boom–bust towns. Bone (1998) identifies other kinds of single-resource towns, such as ‘towns of uncertainty’, which are predominantly dependent on resource production, but may broaden their base under certain circumstances, government support or tariffs. Diversified towns manage to broaden their functions, attract another dimension of population and increase the town's size. Sustainable towns depend on sustainable or renewable resources and have developed good management systems to enable ongoing economic production.

Geyer and Kontuly refer to the concept of differential urbanisation, which identifies three phases of urbanisation: the primate phase, the intermediate phase and the small city phase (Geyer, 2003; Geyer & Kontuly, 1993). In the primate phase, substantial economic development attracts large numbers of migrants. The city expands at a fast rate. In the intermediate phase, the city is independent and not simply a dormitory town for the primate city, with most of the residents employed by the city's catchment area. In the small city phase, also known as counter-urbanisation, there is population movement from the primate and the intermediate phases to the small centres. The small centres begin to grow faster than both the primate and intermediate centres.

Scholars also refer to gentrification as a process of urban development that transforms the value of urban neighbourhoods from low to high (Hammel, 2009; Karuri-Sebina & Beckley, 2023). The causes of the transformation are complex and interrelated, and sometimes linked to the neighbourhood attracting capital investments, which increases property values, or due to the implementation of urban renewal initiatives. Gentrification can lead to rapid changes in the neighbourhood, can displace poor or working-class households, disrupt livelihoods and change the area's demographics. While gentrification is mostly found in the Global North, the phenomenon increasingly manifests in the Global South (Karuri-Sebina & Beckley, 2023).

Concerns about displacing and excluding residents who are poor is also raised in the downward raiding concept. This is a form of urban dislocation in which low-income housing is exploited by relatively wealthier groups, for instance, groups buying low-cost housing (Garmany & Burdick, 2020). Unlike gentrification, which is prevalent in the Global South, the downward raiding cases cited are in the Global South (Lemanski, 2014).

3.3.3 The impact of life cycle theories on neighbourhoods

Life-cycle theories influenced urban planning across the United States (Metzger, 2000), where they were used to explain urban decline and inform strategies for halting and revitalising distressed areas (Hollander & Ne'meth, 2011). The idea was that demolition, conservation, and rehabilitation could stop or reverse the cycle at an early decline stage (Metzger, 2000). Urban planners and policymakers aimed to revitalise shrinking cities by advocating for government investments in vacant land. Urban renewal programmes and redevelopment or revitalisation plans were top-down.

The life-cycle theory has been blamed for exacerbating disparities between urban areas. In the United States, it was used by financial institutions to mortgage redline some geographical regions, mainly those occupied by the impoverished people living in cities, such as segregated ethnic and minority groups (Hollander et al., 2011). Fol and Cunningham-Sabot (2010) refer to Hoyt's (1939) observation that property values dropped when less prosperous populations moved into the neighbourhoods of American cities. This approach introduced a racial element to the analysis and led to the notion that the arrival of ethnic minorities was responsible for the decline. Metzger (2000) argues that the life cycle theory was used by financial institutions to refuse specific neighbourhoods from getting loans, and led to decisions by urban planners that exacerbated economic disparities in cities in the United States. Metzger's analysis shows that life-cycle models harmed urban neighbourhoods and were "self-fulfilling prophecies by discouraging investment in neighbourhoods undergoing improvisation, leading to situations of planned abandonment" (Fol & Cunningham-Sabot, 2010, p. 367).

Community groups challenge life-cycle theories and argue that "the future of an urban neighbourhood depended not on its stage in a race-based life cycle of inevitable decline, but on whether residents had access to financial resources within an environment of community control" (Metzger, 2000, p. 7). Critiques of the life-cycle theories oppose the view that urban decline is inevitable and encourage planners to manage depopulation proactively (Hollander & Ne'meth, 2011). The critiques emphasise that urban decline is a complex phenomenon, and highlight the uniqueness of each neighbourhood (Hollander & Ne'meth, 2011). They propose an alternative, that of recognising that each neighbourhood has unique problems (Hollander & Ne'meth, 2011). Grassroots organisations embrace alternative neighbourhood change theory and use neighbourhood change theory to improve the quality of life of some of the poorest

neighbourhoods by proactively undertaking development programmes, such as affordable housing (Hollander & Ne'meth, 2011).

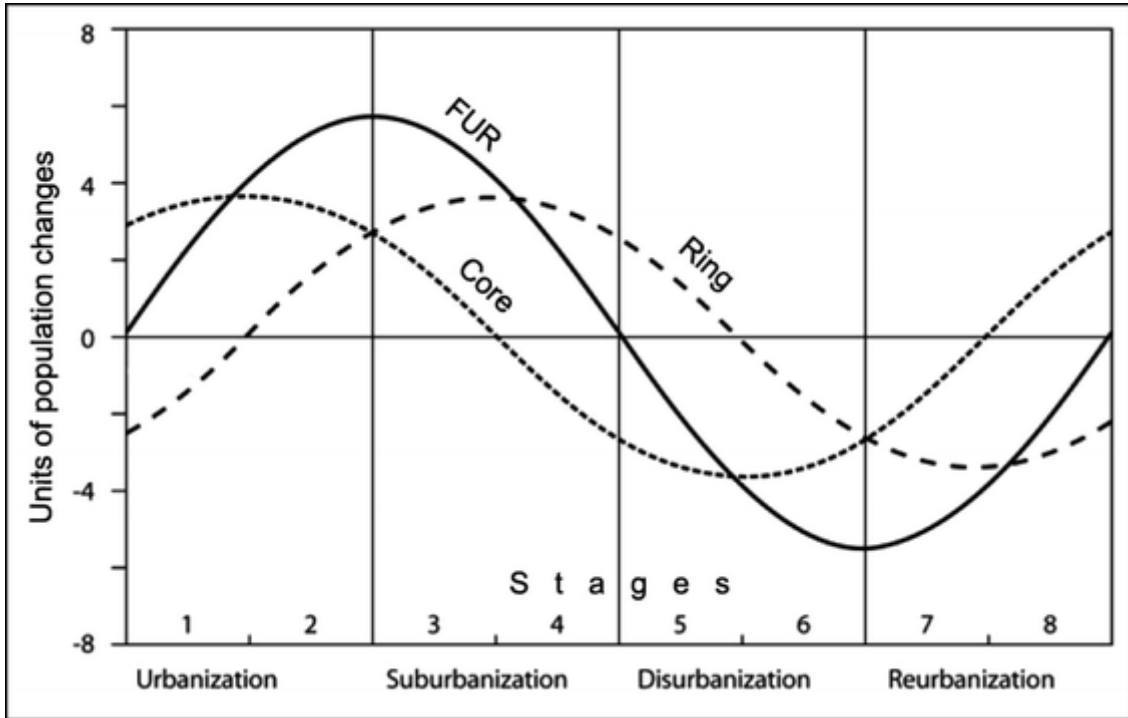
3.3.4 Life-cycle theories and stages of urban development

Like human ecology and neoclassical urban economics, life-cycle theories link population to economic growth and attribute urban decline to suburbanisation. In their study of European cities, Hall and Hay (1980), investigated patterns of urban development and argue that cities go through successive stages of development (Cheshire, 1999). Cities, also referred to as functional urban regions, were studied in terms of the rate of growth of the population at the (i) core of the city (inner city), (ii) periphery (ring or hinterland), and (iii) the functional urban region as a whole. Hall and Hay (1980) observed a centralisation pattern within the functional urban region in the initial stage, as the population at the core grew faster than at the periphery. Relative decentralisation followed as the growth rate in the periphery exceeded that at the core, leading to absolute decentralisation and, finally, decentralisation, when the decline was relatively faster at the core (Cheshire, 1999).

Van den Berg et al. (1982) observed a similar pattern in European cities and developed a four-stage general theory of metropolitan change. Figure 3.2 illustrates the four phases:

- i) Urbanisation causes migration from rural to urban areas, and the core city grows faster than the periphery. It is a time of industrialisation and increased employment opportunities, and local public transport at the core. Over time, this concentration at the core becomes less attractive for business and residence, which forces people to look for alternatives, and leads to an out-migration to the suburbs.
- ii) Suburbanisation occurs because of the decentralisation of businesses and residences. In Europe, this phase occurred in the 1960s, when people moved from the core city to the periphery, aided by better transport facilities. Authorities expanded the public transport infrastructure network, and the periphery grew faster than the core. The number of people commuting between the periphery and core increased, because many still worked in the core. Work and residential areas are increasingly separated.
- iii) De-urbanisation occurs when the urban area's total population decreases. Core areas decline as people opt for smaller towns and rural areas, as happened in Europe in the 1970s. Out-migration increases, mainly due to congestion, which makes workplaces expensive due to high competition and less accessibility. Smaller towns and rural areas become more attractive, because they offer a better quality of life.

- iv) Re-urbanisation occurs when the core grows again due to local government policy targeting the inner city, and capitalising on their local advantage to attract investors and developers. Some European cities (in the Netherlands, Germany Scandinavia, and Italy) started successful inner-city restoration programmes in the 1980s, such as pedestrianisation schemes or new public transport systems (Kunzmann & Wegener, 1991).



Note: FUR: Functional urban region

Figure 3.1: Stages of urban development

Source: Van den Berg et al. (1982, p. 38)

3.3.5 Drivers of urban shrinkage

Weaver et al. (2017) highlight three main drivers of urban shrinkage: deindustrialisation, suburbanisation and demographic change. Deindustrialisation is “a substantial downward, quantitative adjustment to the stock of employers and employees engaged in the production of manufactured goods” (Weaver et al., 2017, p. 57). Under suburbanisation, the built environment expands outward from the city centre. A higher quality of life on the periphery attracts suburbanised workers, and some urban workers may choose to travel long distances to

their workplaces. Often, authorities convert the vacant spaces left behind in the city centre into low-density residential areas.

Demographic change due to decreasing birth rates and increasing life expectancy is another explanation for urban decline (Haase et al., 2014). Scholars argue that birth rates in European and North American countries are below “replacement levels” (Haase et al., p. 4). The average age of the population rises, and the size of the population of working-age decreases, leading to further population losses in cities (Haase et al., 2014, p. 4). In addition to natural demographic processes, migration causes shrinkage if the number of out-migrants exceeds the number of in-migrants (Weaver et al., 2017). Also, the age structure of the migrants has economic and social implications; their ages, levels of education and skills reflect the nature of the loss caused by the out-migration.

Often, one generation moves into a newly developed area, which matures as that generation matures. The neighbourhood may decline if elderly residents cannot maintain their properties. At this point, if market values of the neighbourhood are not high enough to encourage regeneration, intervention may be necessary by the local government.

Some geographers attribute decline to territorial divisions of labour, by arguing that spatial concentrations of particular businesses, industries, and labour depend on the decisions taken by industrialists when they respond to economic and technological change (Haase et al., 2014, p. 4). Also, industrialists respond to local and regional policies that are designed to distribute industry geographically when decisions are made about location. Scholars note that the locational requirements of industries change continuously, due to changes in production processes, which, in turn, affect the spatial distribution of the population (Massey, 1995). Since the decline of economic activities started mainly in the inner city, the tendency was to look at the inner city to find ‘locational characteristics’ that caused the decline (Massey, 1995, p. 13). This idea of searching for causes in the inner city was not always correct. In many cases, the causes were not necessarily in the inner city, but could be the result of an international recession and national decline. The different approaches to searching for the causes of decline indicate that “spatial patterns are not necessarily the result of spatial causes” (Massey, 1995, p. 13).

3.3.6 Urban decline and shrinkage

All the theoretical interpretations that have been developed focus on the causes of urban decline. These concepts describe urban decline as a process that is part and parcel of

urbanisation, with some places attracting capital while others fail and are abandoned, leading to out-migration (Haase et al., 2014, p. 4). Furthermore, the concepts omit fundamental causes of population decline, such as conflict and environmental disasters, for example, earthquakes, floods and hurricanes.

Urban scholars remind us that shrinking cities concepts were developed at different times and in different geographical areas, and using different frameworks (Haase et al., 2014). The causes of decline change from one period of history to another (Hollander et al., 2009). Both linear and cyclical models appeared in the 20th century during the Fordist industrialisation (Fol & Cunningham-Sabot, 2010), which was a time of economic growth due to mass production, mass consumption and industrial capitalism. Production was rising due to economies of scale, and so were incomes, demand, and profits, which enabled more investments and further production increases (Jessop, 1992). Also, production was producer-driven and centralised in a few industrial centres.

The economic and urban development environment has changed tremendously, and these models are considerably less relevant in the current context. There has been a worldwide shift from centralised mass production to flexible production processes that use flexible technology and a relatively flexible workforce (Jessop, 1992). Production is more consumer-oriented, and specialised computer-controlled techniques are increasingly being utilised to meet varied specifications of goods and services. The COVID-19 pandemic will influence how cities are managed in the future. For example, public transport systems are being abandoned for safer alternatives, such as private vehicles, walking and biking (Sharifi & Khavarian-Garmsir, 2020). Climate change is another factor that influences production and affects business strategies. Policies have been enacted locally, nationally and globally, which requires businesses to use cleaner and more resource-efficient production machineries and practices to save energy and combat global warming. Urban scholars have contested models that predict decline as inevitable and, more recently, urban scholars have highlighted a variety of ways in which cities transform (Cunningham-Sabot et al., 2013; Fol & Cunningham-Sabot, 2010). Models that globally attribute the urban decline to either suburbanisation or changes in technology do not sufficiently explain the shrinking cities phenomenon, which is multidimensional. Globalisation causes the shrinking city phenomenon and influences its spatial manifestations (Ortiz-Moya, 2015). Scholars have pointed out that there is a gap between theory and empirical observations, and Haase et al. (2014) propose a pluralistic approach that includes various explanatory factors for urban shrinkage.

3.4 GLOBALISATION AND SHRINKING CITIES

Globalisation has taken place for centuries and is visible in the spatial amalgamation of economic activities, the flow of capital, and the movement of people, which are facilitated by advancements in transport, information and communication technologies (Cunningham-Sabot et al., 2016; Haggag, 2004). Globalisation refers to “the growth of the sizes of social systems and the increase in the complexity of intersocietal links” (Sheffield et al., 2013, p. xix). Globalisation comprises many processes through which spaces are configured or reconfigured due to changes in technological and political practices (Faulconbridge & Beaverstock, 2009). Globalisation allows ideas to spread rapidly and impacts the cultures, values and norms of societies across nations, and significantly reduces cultural diversity (Suresh, 2003). It affects social organisation and social practices and influences governance practices of economic actors worldwide and domestic policy in all countries (Castells, 2010; Suresh, 2003). Social movements and geopolitical strategies have also become predominantly global, abetted by information and communication technology (Castells, 2010). The main drivers of globalisation are (i) transnational corporations (TNCs) or multinational companies, (ii) governments that enact policies to reduce trade barriers and attract global trade and foreign direct investments, and (iii) international organisations that promote global standards, such as the World Trade Organization (Faulconbridge & Beaverstock, 2009, p. 332).

Countries have become more interdependent, which is illustrated by the way global financial crises arise, spread rapidly, and adversely impact all nations. Also, the power to control economies has shifted away from states, mainly towards TNCs and international organisations. A TNC is defined by Dicken (2007, p. 106, quoted by Faulconbridge & Beaverstock, 2009, p. 334) as “a firm that has the power to coordinate and control operations in more than one country, even if it does not own them”. TNCs spread globally during the second half of the 20th century and today control some of the biggest businesses, such as Google, Unilever, McDonald’s, Apple, Amazon and Coca-Cola, that have significant influence on the global and local economies. Standardising the financial value of assets, firms, governments, and entire economies has promoted global economic exchanges. Many countries have opened their markets to the global economy, and contribute to a single market for factors of production, goods, and services. Industries with cross-border networks, such as “finance and specialised services, the new multimedia sectors, and telecommunications services” (Sassen, 2005, p. 40) play a significant role in the growth of the global economy. In the current global landscape, countries are exposed to global dynamics beyond their control. The complex environment in

which countries find themselves has created spaces not regulated by governments or responsible agencies, and has enabled the emergence of illicit markets and the unstoppable growth of the global criminal economy (Castells, 2010). Businesses can locate their investments in countries with cheap labour and raw materials, market their products competitively globally, and quickly relocate their production units or disinvest from ventures when conditions cease to be favourable (Faulconbridge & Beaverstock, 2009; Fol & Cunningham-Sabot, 2010). Fol and Cunningham-Sabot (2010) explain that we are in an era when companies are footloose, with industries abandoning specific urban neighbourhoods, and creating spaces increasingly taken over by service businesses.

Similarly, labour can move across nation-states and relocate for better job opportunities and quality of life. Cunningham-Sabot et al. (2013, p. 23) observe that “the volume of goods exchanged globally has increased faster than the volume of goods produced”. The large volumes of trade, the high mobility and liquidity of capital, the fast speed at which exchanges happen, the binding international treaties, complex networks, and the risks involved in production and transactions make globalisation a peculiar process. Globalisation has economic, social, environmental and political impacts, affects all levels of society and creates challenges for cities, especially in developing countries (Suresh, 2003). Consequently, the increased worldwide interconnectedness requires all states to consider global factors when developing local solutions, and to participate in the search for answers to global problems (Sheffield et al., 2013).

Some cities and geographical regions take advantage of globalisation by equipping themselves to attract investments and skilled workers. As noted by Cunningham-Sabot (2016), these “glocal cities” invest in the necessary technology and innovation and acquire knowledge that enables them to stay “connected” with global networks and to compete successfully at that level. These cities “pursue growth at all costs, compete for it with other cities and regions and leverage public funds through public-private partnerships that cater primarily to rentier classes and real estate and development interests” (Cunningham-Sabot et al., 2016, p. 25). However, many cities struggle to compete globally and end up “unconnected” from the centres of economic growth, and succumb to the pressures of global forces. Unable to attract talent, knowledge and innovation, the “unconnected” cities lose skilled people to more prosperous cities, which adversely affects their capacity to succeed (Cunningham-Sabot et al., 2016; Fol & Cunningham-Sabot, 2010).

Out-migration affects economic activities and mostly impacts small and medium enterprises, since their operations depend on skilled workers. The situation is especially devastating when the commercial activities of a city depend on one industry or a sector affected by the out-migration (Fol & Cunningham-Sabot, 2010). Consequently, the “unconnected” cities shrink, degenerate and find themselves in spaces that are “black holes”, a metaphor used by Castells to refer to specific neighbourhoods of the Global South excluded from the global networks (Cunningham-Sabot et al., 2016, p. 24). Some sections of the worldwide society are disadvantaged, and the gap between the poor and rich keeps on widening. Scholars have observed that global cities grow at the expense of shrinking cities (Cunningham-Sabot et al., 2016). The situation is volatile, and the number of shrinking cities is increasing worldwide, including some urban regions in emerging economies that enjoyed decades of intense growth (Fol & Cunningham-Sabot, 2010). Castells (2010) refers to the “network society”, which has constituted a global network that includes some people and excludes others.

Urban shrinkage is a spatial consequence of globalisation and needs to be studied together with growth, because “growth and decline are two faces of the same ‘global’ coin” (Cunningham-Sabot et al., 2013). The shrinking cities concept introduces a new perspective on how cities develop, by acknowledging both growth and shrinkage as valid and natural paths of urban development (Silva et al., 2015) and that should both be part of urban policy. The shrinking cities concept refers to a new, global, complex phenomenon that differs from the classic concept of urban decline (Audirac, 2018; Cunningham-Sabot et al., 2016). The shrinking cities model requires cities to move away from pursuing growth as the primary goal; instead, they should develop policies for local economic development that address the decline and its social impacts, particularly for vulnerable groups (Cunningham-Sabot et al., 2016).

Consequently, the deep divides within and across countries, between the highly provisioned and the disadvantaged, raise questions about power and inequality (Sassen, 2005), since a large portion of the world’s population is cut off from global networks (Castells, 2010). Globalisation involves powerful forces working concurrently at local, national and regional levels to create an inequitable and unsustainable world. An increasingly interconnected world means that the most vulnerable groups in society cannot escape from the adverse effects of globalisation, hence, the need for enhanced international cooperation to build a more equitable world (United Nations, 2020).

3.5 MEASURING THE EXTENT OF URBAN SHRINKAGE

A combination of indicators is required to determine whether a city is experiencing shrinkage. Beauregard (2009, cited by Hollander & Ne'meth, 2011), identifies four qualities for consideration when examining shrinkage: prevalence, severity, persistence, and geographical incidence. In their review of spatial metrics (quantitative measures to evaluate spatial characteristics), Silva et al. (2015) identify several measures available in international literature, although measures designed mainly to assess shrinkage are scarce and inadequate to give details of spatial patterns. The reason for the scarcity of measures of shrinkage is partly because the interest in shrinking cities is recent, and its spatial patterns are unclear (Silva et al., 2015). Often, when urban shrinkage or population loss occurs, it is not immediately followed by spatial shrinkage of the city. There are time lags from the time the population loss begins to when the decline is reflected spatially (Silva et al., 2015; Weaver et al., 2017). Silva et al. (2015, p. 25) caution that “shrinkage is not the opposite of growth”, as the physical space can continue to grow in population even while the city is shrinking.

Studies have noted the difficulty in obtaining high-quality data on shrinkage and highlight the importance of quantitative analysis of spatial patterns and the need to improve or develop new spatial indicators for measuring shrinkage (Silva et al., 2015). The usefulness and quality of the metrics depend on the data available, the method of aggregation and the scale of analysis used in the empirical study (Silva et al., 2015). Also, various variables, such as physical structures, demographics, land use and socioeconomic data, are required to analyse shrinkage patterns. Thus, several spatial metrics have been adopted from various disciplines and urban growth indicators to measure shrinkage.

3.5.1 Population loss

The population size of a given geographical area determines its production and consumption activities and the nature of public services required for that area. Thus, urban scholars commonly use changes in population census results to identify a shrinking city. Weaver et al. (2017) refer to two approaches to identify shrinkage. Firstly, in the binary method, absolute population figures dominate assessments. A decrease in the total population is classified as shrinking, while an increase or no change is considered growing or stable (Weaver et al., 2017). In the case of the binary method, researchers must indicate (i) the prevalence of shrinkage, which is the number of times a decrease is recorded during the study period, and (ii) the severity

of the shrinkage, which is the magnitude of the decrease, and (iii) the persistence of the shrinkage, indicating the chronological nature of the decrease.

The second approach used to measure shrinkage is the threshold method, which uses a prespecified value to signify population loss in a given period. Thus, any decrease in population greater than the prespecified value during the period is considered a shrinkage. The values are somewhat arbitrary, and different scholars may use different threshold values (Weaver et al., 2019). For Schilling and Logan (2008, p. 452), shrinkage occurs when there is a “significant and sustained population loss of 25% or higher over the past 40 years” with an increase in vacant and abandoned properties. Hollander (2011, cited by Weaver et al., 2017), uses a 30% or higher loss over 40 years. The threshold method is valuable for academic and policy research, provided the same threshold value is used to compare the shrinkage of different areas over a given period. For both methods, the loss in the population must be severe and persistent (Weaver et al., 2017).

3.5.2 Per capita and aggregate income

Per capita income is the total income of a geographical area divided by the total population of the same area, and aggregate income is equivalent to the per capita income multiplied by the total population (Weaver et al., 2017). Computing the aggregate income of a geographical area for each decade, for example, over 40 years, will indicate whether the city is experiencing economic shrinkage. Scholars believe that there is a correlation between population shrinkage and economic shrinkage. Although insufficient to indicate wealth, financial capital can be used to analyse shrinkage. Weaver et al. (2017) refer to a household mobility process known as filtering, whereby relatively wealthy households move from depreciating homes to newer neighbourhoods. The lower-income households take over the depreciating homes. It is possible to map this movement of households over a given period. Scholars believe that population shrinkage goes with filtering, and out-migration leaves households with relatively lower incomes. Mathematical models are available to show that population shrinkage and economic shrinkage are dependent, but population shrinkage is more predictive of economic shrinkage than vice versa (Weaver et al., 2017, p. 27).

3.5.3 Presence of high rates of housing vacancy, as a result of population out-migration

Shrinking neighbourhoods cannot maintain residential and commercial structures and become physically less attractive, which may result in more out-migration (Weaver et al., 2017). Population loss happens much faster than shrinkage in terms of the built environment. Many places remain vacant for a long time, making the area less attractive, and often results in more buildings being abandoned. Consequently, there is a mismatch between the number of residents and the available housing units (Weaver et al., 2017). As shrinkage increases, the number of vacant spaces also increases.

In most cases, the closure of mines, manufacturing industries and deindustrialisation result in the ‘hollowing-out’ of urban spaces, creating brownfield sites in the inner city and the periphery (Silva et al., 2015). Thus, it is common to find perforated and fragmented urban landscapes in shrinking cities, with vacant and abandoned spaces, low-density settlements and a severe deterioration of the city fabric (Silva et al., 2015). Shrinking caused by suburbanisation often results in sprawling of the city periphery. Geospatial metrics help to analyse residential vacancies, demolition and urban sprawl.

3.5.4 Social capital

Social capital is another factor that determines the trajectories of neighbourhoods. There are many definitions of social capital, but no agreement on measuring it (Temkin & Rohe, 1998). Kleinhans et al. (2007, p. 10) refer to social capital as “resources accessible through social networks, norms and trust”. It is a tangible resource that can be utilised by a community and varies from one neighbourhood to another. Social capital is associated with stability and the ability of a community to help itself, with a high probability of a decline in a neighbourhood where it is lacking (Temkin & Rohe, 1998; Weaver et al., 2017). Social capital enables people to respond more effectively to changes in their communities (Temkin & Rohe, 1998). Weaver et al. (2017) add that neighbourhoods rich in social capital can cooperate to counter decline. The concept highlights the importance of people being connected and their ability to achieve more collectively than separately.

In a neighbourhood, social capital is determined by (i) the degree of civic engagement, which is the level of citizens’ participation in political decision-making processes, such as voting and advocacy groups, and (ii) the level of trust among residents, which encourages mutually

beneficial interactions (Temkin & Rohe, 1998). Social capital is intangible and can be determined by qualitative approaches to understanding social relations, although such methods tend to be costly and time-consuming. Quantitative proxies for social capital, on the other hand, are less expensive and can be applied using secondary data (Weaver et al., 2017). According to Weaver et al. (2017, p. 72), proxies for rich social capital include

stable homeownership rates; a relatively high number of civic organisations; a relatively high number of government offices; a greater share of long-term stakeholders; a greater predisposition to others in transactions characterised by asymmetric information; slightly lower income inequality; and greater internal community homogeneity.

Although various metrics have been adapted from different disciplines to measure urban shrinkage, more indicators are required to provide more details on the spatial patterns of shrinking cities (Silva et al., 2015). Spatial metrics and demographic and socioeconomic variable data are needed for planning and urban analysis.

3.6 A HEURISTIC FRAMEWORK FOR URBAN SHRINKAGE

The shrinking cities phenomenon is multifaceted, and no single theory explains it sufficiently. Haase et al. (2014) developed a practical approach to explain how and why cities shrink. The heuristic model uses a pluralistic approach to examine three aspects of shrinkage: (i) drivers of, (ii) impacts of, and (iii) responses to this phenomenon, as well as the interrelations between the three aspects. This model builds on theories of other scholars and uses findings from empirical studies done in Europe to illustrate the main processes and conditions of shrinkage (Haase et al., 2014). The three aspects of shrinkage are shown in Fig. 3.2 and explained below.

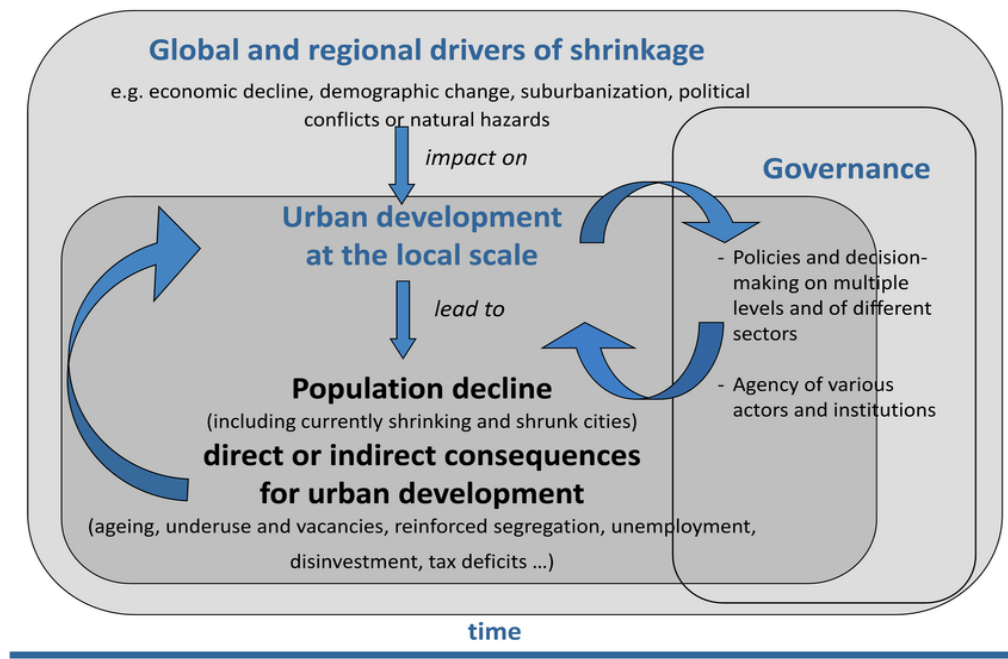


Figure 3.2: Urban shrinkage: a heuristic model

Source: Haase et al. (2014, p. 7)

3.6.1 The drivers of shrinkage

According to Haase et al. (2014), shrinkage occurs at all spatial levels, ranging from regional to global. It manifests in different ways, and includes economic decline, demographic change, and changes that take place in settlement systems such as suburbanisation and urban sprawl, as mentioned by Couch et al. (2005), Kabisch et al. (2008) and Nuissl and Rink (2005) (cited by Haase et al., 2014, p. 6). Changes may result from environmental disasters and radical changes in political and administrative systems. Population decline is recognised as the primary indicator of shrinkage, in agreement with earlier scholars, such as Bradbury et al. (1982) and Turok and Mykhnenko (2008).

3.6.2 The impacts of shrinkage

The heuristic model identifies diverse impacts of shrinkage, including the local labour market, spatial differentiation, housing, land use patterns, the state of social and technical infrastructure, municipal finances, investment, and the overall local economy. It notes, furthermore, that consequences of shrinkage can be direct when people leave the neighbourhood, buildings remain vacant, infrastructure usage decreases, and revenue from

taxes declines, resulting in deindustrialisation (which could be a cause or consequence) and the emergence of brownfield sites. Consequences can also be indirect, stemming from a series of factors triggered by, for example, the closure of a mine or factory. A decline in such economic activities decreases municipal revenue and neglect of policies, leading to an influx of marginalised households, and may eventually result in the demise of the neighbourhood.

3.6.3 Responses of shrinking cities

The nature of governance arrangements at all levels (local to global) and the tension between private and public interests will influence urban shrinkage in different ways over time. The urban development strategies in response to shrinkage will depend on the city's historical context and how the various forces impact it. Responses include local authorities enacting policies for providing public services and infrastructure, closing schools and clinics, reducing public administration provision and corresponding budgets (fiscal austerity), lobbying for increased budget allocation from the national government, getting financial assistance from banks or funding agencies, and urban restructuring (e.g., demolition of nonessential buildings).

The heuristic model summarises the multiple drivers of shrinkage, and the varied impacts of shrinkage and governance responses the city can take, depending on the national and global context within which the city operates. Thus, each shrinking city has a unique experience, even when the causes and contexts are similar. Haase et al. (2016) explains that information on how cities respond to governance strategies at the different levels of society is not always readily available. Planners and decision-makers are advised to avoid assuming that two situations are identical, but to thoroughly study each case when developing and executing governance responses.

3.7 SHRINKAGE AND URBAN PLANNING

Shrinkage poses a challenge for urban planning, because the planning culture has, in the past, relied on the steady-growth paradigm (Stryjakiewicz, 2013). Planning for shrinking cities is complex, and involves competing agendas and multifaceted processes at different phases that seem fragmented and disconnected (Schlappa, 2016). Shrinking cities struggle to adapt to new circumstances, and face reduced revenue, lost political power, and vacant spaces and abandoned buildings. Weaver et al. (2017, p. 127) identify four actions that can be taken by decision-makers of a shrinking city, namely, (i) trivialising urban shrinkage by ignoring the

phenomenon and choosing to not take action, (ii) countering urban shrinkage by promoting urban growth and strategies to attract investments and new residents, (iii) accepting urban shrinkage and focusing on improving the environment for the remaining residents, and (iv) utilising urban shrinkage as an opportunity to build a smaller, but better living environment. As persistent population loss becomes more visible, decision-makers are increasingly choosing the latter two options, which are likely to go hand in hand.

Urban scholars have developed tools and frameworks to guide planning processes for shrinking cities. Three strategies are proposed: (i) counteracting or alleviating the adverse effects of shrinkage, (ii) seeking new sources of growth; and (iii) promoting positive aspects of shrinkage (Stryjakiewicz, 2013). This recommendation originates from an international research project, CIRES “Cities Regrowing Smaller – Fostering Knowledge on Regeneration Strategies In Shrinking Cities across Europe”, which studied cities in 26 countries (Pinho & Sousa, 2010). Strategies for addressing the numerous challenges of shrinking cities have evolved and range from pro-growth planning processes to creative ways of dealing with the phenomenon. The following section will examine pro-growth urban planning before discussing the smart decline and rightsizing theories.

3.7.1 Pro-growth urban planning

Previously, urbanisation was associated with growth and economic development. Urban planners and policymakers were biased towards growth and expansion. Depopulation was considered an anomaly and less significant than growth (Popper & Popper, 2010). In most cases, what needs to be done to address decline is unclear and the tendency is to focus on generating growth (Schlappa, 2016). Beauregard (2003) states that large cities in the United States enjoyed uninterrupted growth up to the time of the Great Depression, with only a few experiencing population decline. Beauregard (2003) adds that even after the Great Depression, most industrial cities continued to thrive until the mid-20th century, when an increasing number of cities that had become centres of prosperity began to experience social problems, closure of businesses and population decline. Scholars note that, while pre-World War II development was characterised by distributive growth, with the urban policy developed to control and manage development patterns, the decades after World War II required policy to address the causes and impacts of decline (Weaver et al., 2017). Some cities continued on their growth trajectory, attracting population and investments, while others were on a downward spiral. For

most cities, population loss translated into reduced revenue for the city and an inability to maintain the same assortment and quality of services delivered.

For politicians and policymakers, growth continued to be the ideal and decline was perceived as a stigma that indicated a city in distress and a deviation from the expected trajectory (Schlappa, 2016). Popular views on decline were rooted in the concepts of neoliberalism and neoclassical economics, which believed in the ability of a perfectly competitive market to allocate scarce resources and attain full employment where the demand for goods and services is equal to supply. The assumption was that individuals have the necessary information to make rational choices, and the government's role was to protect property rights and support the private sector (Weaver et al., 2017). Cities had to compete in the open market to attract skilled labour and investments, ultimately growing the population. Primarily, the ability of the city to compete determined its success. Shrinking, on the other hand, was a sign of failure (Weaver et al., 2017). Thus, shrinking cities had to adopt a pro-growth approach in the planning and governance of socioeconomic development. Weaver et al. (2017) refer to pro-growth policies for shrinking cities adapted for cities in the United States. The policies focused on:

- i) Large-scale urban development projects: These are highly visible, subsidised 'signature' projects designed to impress, attract investments, and improve the city's image.
- ii) Tax foreclosure and public auctions: Abandoned buildings can adversely affect the property market, erode cities' social capital, and perpetuate decline.

Scholars report that pro-growth strategies are insufficient to address the impacts of shrinkage and may even increase the negative consequences of distress (Wiechmann & Pallagst, 2012). For example, Manchester, previously a great industrial city that peaked in 1931, rebranded itself to change its image and improve certain aspects, including its political game. However, its flagship development projects did not address the economic and social problems that arose from decay (Ortiz-Moya, 2015).

Schlappa (2016) observes that shrinking cities find it difficult to develop strategies that are not based on competitiveness and economic growth. Furthermore, appropriate strategies should consider abandoned spaces, structures, and weak processes and institutions, given that decline is the key driver of change in a shrinking city. The problem cited is the absence of a model that could enable cities to make decline an integral part of the envisioned future (Schlappa, 2016).

Accepting shrinkage is a challenge for cities, because, for public officials and policymakers, it is tantamount to admitting failure (Weaver et al., 2017). Also, shrinkage raises questions about social justice issues, because shrinkage often entails cutting public expenditure on social services and infrastructure. In addition, shrinkage requires repurposing some spaces, which mainly affects the poor echelons of society. Essentially, there is a mismatch between the task at hand and the capacity of the shrinking city to deliver on its obligations, which leads to inefficiencies in public services. Robert Beauregard introduced the term “parasitic urbanisation” to refer to a pattern of development in which “some places thrive as others are left behind” (Weaver et al., 2017). Popper and Popper (2010, p. 1) summarise changes in urban planning approaches by noting that, in the 1950s and 1960s, American planning strategies focused on “growth control”, in the 1970s and 1980s on “growth management”, and in the 1990s and 2000s on “smart growth”. Urban scholars have observed the need to pursue a non-growth planning paradigm, and to realise that achieving successful development in shrinking cities cannot be achieved by pursuing growth-oriented strategies (Joo & Seo, 2018).

3.7.2 Smart decline

In the 19th century, while cities grew and expanded in the United States, rural areas lost their population due to urbanisation. The persistent population loss led to the shrinkage of rural economies, and communities were forced to develop creative solutions. Popper and Popper (2010) worked with rural communities in the buffalo country of the Great Plains states of the United States, which, after experiencing depopulation for decades, began to plan for a smaller but better future. Popper and Popper (2010) called their approach in the United States plains the ‘Buffalo Commons’ – a strategy developed in 1987 that promoted ecological restoration, research, ecotourism, and the protection of large parcels of land that communities, private businesses and the state could use. The focus was on improving the quality of life of people remaining behind, rather than investing in attracting new people to the neighbourhood (Weaver et al., 2017). This approach changed the way communities thought about the future. Popper and Popper (2010) used lessons from the rural Great Plains to develop the ‘smart decline’ concept, also called ‘smart shrinkage’ (Weaver et al., 2017).

Towards the end of the 20th century, manufacturing in the United States experienced increasing competition from cheaper products manufactured elsewhere in the world. During this period, some companies faced bankruptcy, and suburbanisation increased, leaving low-income groups behind in cities (Popper & Popper, 2010). Too few people remained to occupy the available

spaces. After decades of failed pro-growth strategies that strived to halt the decline and reverse its impact, the cities turned their approach towards transformation, by encouraging depopulation and renewal of vegetation in the abandoned areas. Popper and Popper established 'Buffalo Commons' in every shrinking city of the Great Plains (Hollander & Ne'meth, 2011). The focus was on providing a better quality of life for the reduced number of residents, rather than striving to grow the cities (Hollander & Ne'meth, 2011). The cities accepted shrinkage, prioritised the creativity of citizens and ecosystems, and developed plans that included razing unoccupied residential and commercial buildings and streets to form larger land parcels and expanding green spaces. The strategy also included improving the remaining buildings and infrastructure. Urban agriculture increased, and shrinkage became a priority in urban planning processes. Popper and Popper (2010, p. 6) summarise tasks that can be adapted based on their Buffalo Commons experience to include

reorganise space; remove unneeded infrastructure; rethink transportation, energy, and food options; encourage industrial and other heritage tourism; and, above all, rightsize themselves in authentic, resilient ways that shun past magical thinking and face the realities of the post-carbon world.

The smart decline concept aligns with the smart growth approach to development, which encourages compact land uses and mixed building types. This approach takes advantage of economies of scale in cities to create denser settlement patterns that offer an improved quality of life for existing residents (Weaver et al., 2017). It discourages urban sprawl. The smart decline concept has been adopted by cities worldwide and has been tailor-made to respond to the challenges of the respective shrinking cities. Hollander and Ne'meth (2011, p. 355) identify three severe flaws in the smart decline strategies adopted by many shrinking cities, namely, a top-down orientation, the assumption of a blank slate at project locations, and the requirement of a quieted (disengaged) public.

- i) A top-down orientation: Strategies are led by the political and administrative leadership of the cities and seldom recognise the importance of bottom-up planning. When affected residents and civil society groups are not involved to participate in the planning processes, and the authorities disregard their views, the situation can escalate into riots and distress (Hollander & Ne'meth, 2011). Thus, if all phases of the plans are to succeed, citizen participation in planning smart decline is critical.

- ii) The assumption of a blank slate at project locations: All neighbourhoods are unique, including their history, culture, ecology, economic realities and political dynamics. Planning for shrinkage should include these differences. Hollander and Ne'meth (2011) refer to four phases for a smart decline planning process: deconstructing, re-evaluating, reorganising, and imagining. All four stages ought to consider the unique disposition of the neighbourhood and power dynamics that influence decision-making.
- iii) The requirement of a quieted (disengaged) public: Under the shortcomings of top-down processes, citizens should be active and not passive participants when planning is done for smart decline. The plans are more likely to succeed when aligned with community members' norms, values, and cultures.

Hollander and Ne'meth (2011) emphasise the importance of social justice in smart decline planning processes. They advocate for people's right to representation and inclusion in public functions and caution that bottom-up approaches do not necessarily yield just outcomes. They propose five primary factors that are interrelated and help to ensure procedural justice when planning for smart decline (Hollander & Ne'meth, 2011, pp. 358-361). The factors are as follows:

- i) Smart decline planning processes must include and explicitly recognise multiple voices: This entails embracing diversity and encouraging different groups, large or small, weak or powerful, to present their views and actively participate in local development processes. The planners must be realistic about the task and expectations, communicate effectively and ensure that all community members trust the process to produce the best outcome for the collective.
- ii) Smart decline planning processes should be political and deliberative in nature: The planning process brings together different interest groups, and enable people to listen to each other, acknowledge their differences and empathise with each other's difficulties.
- iii) Smart decline planners should be cognizant of the different communication techniques and provide information that empower citizens to recognise and challenge disparities and structures of domination: Planners need to understand the power dynamics of the neighbourhood, provide everyone with relevant information, uncover uneven power relations, and ensure that the process does not promote domination, unfairness and oppression.

- iv) Smart decline planning processes must be transparent and value different types and sources of information. All vital information should be made available to everyone. Different means of communication ought to be used to ensure that everyone clearly understands all alternatives available and is empowered to participate as required actively. A bottom-up community participation approach should be applied.
- v) Smart decline planning processes should be regional in scope but local in control and implementation: Hollander and Ne'meth (2011) acknowledge that, while justice should be viewed globally, the planning processes should develop the regional context and implement plans executed by considering the local context. Approaching planning with the relevant context in mind eliminates blank-slate thinking. Regional plans highlight significant issues that have to be discussed by the community when planning for a smart decline. Hollander and Ne'meth (2011, p. 361) include the following aspects: "transportation plans, infrastructure development, environmental protection, heritage and historic preservation, and proposed regional economic drivers". These discussions enable an understanding of regional political-economic conditions and their effect on the local environment. However, the regional context should not dictate local plans; participants should feel empowered to control local planning activities and achieve the desired goals.

Schlappa (2016, p. 7) refers to the argument of Mintzberg et al. (2009) that "for any institution to survive the test of time, strategic management must embrace decline and loss as much as development and innovation". Also important are governance arrangements suitable for the local context, the optimal use of local assets, and meaningful engagements with civil society to find appropriate responses to the decline. Appropriate strategies ought to be underpinned by collaboration, sustainability, reciprocity, civil society empowerment, and the development of social capital, and reflecting local cultures and circumstances (Schlappa, 2016). Hence, strategic leadership that understands the complexities of the multifaceted challenges and, most importantly, people's voices, is critical. A new type of leadership of shrinking cities is recommended, shifting from the traditional hierarchical and competitive leadership behaviour to collaborative practices to develop coherent strategic responses to decline (Schlappa, 2016). Hence, leaders of shrinking cities should embrace decline as an integral part of finding new collaboration ideas to address the challenges of shrinkage and build sustainable communities.

Today's leaders must be strategic thinkers with sound logic and reason, but also mindful, intuitive and empathetic, and must be able to inspire authentic engagement and collaboration (Janni, 2022).

The smart decline planning process applies the communicative planning theory. Planners value local knowledge and views and, using bottom-up democratic approaches, allow citizens to shape the future of their neighbourhoods (Healey, 2006; Weaver et al., 2017). It is unlike the rational planning theory, which is a top-down approach whereby planners and other experts decide on urban strategies without considering the views of the local community (Weaver et al., 2017). When planning for shrinking cities, it is necessary to move away from pro-growth planning and policies and to apply creative means of addressing local challenges holistically – an approach referred to as 'shrinking smart' (Wiechmann & Pallagst, 2012, p. 4).

3.7.3 Rightsizing

Schilling and Logan (2008) realised the challenge facing shrinking cities in America's older industrial communities, caused by the increased presence of vacant and abandoned properties, and they developed the rightsizing model to convert these spaces into 'green' infrastructure and land uses (Weaver et al., 2017). Scholars describe rightsizing and smart decline as synonymous, and many opt to use the term rightsizing, because it is less ambiguous. The smart decline concept is criticised for creating the impression that cities where this model is adopted "wish to continue declining" (Weaver et al., 2017). According to Schilling and Logan, rightsizing refers to "stabilising dysfunctional markets and distressed neighbourhoods by closely aligning a city's built environment with the needs of existing and foreseeable future populations by adjusting the amount of land available for development" (2008, p. 453). Rightsizing is about converting vacant and abandoned properties into green spaces.

The rightsizing model proposes three outcomes that shrinking cities have to work towards, namely, (i) instituting green infrastructure plans and programmes, (ii) creating land banks to manage the revitalisation efforts, and (iii) building community consensus through collaborative neighbourhood planning (Schilling & Logan, 2008). Weaver et al. (2017, pp. 132–144) refer to four strategies proposed by Oswalt (2006), which are:

- i) Disassembling strategies: Vacant and abandoned properties are costly and affect the value of nearby properties adversely. Action proposed by the rightsizing models includes demolishing abandoned and obsolete buildings or, where

possible, deconstructing them for reuse. Consolidation is possible through an expert analysis to identify which buildings or neighbourhoods are viable, using physical, economic and demographic indicators and making the necessary adjustments.

- ii) Re-evaluating strategies, and reusing the targeted sites once the authorities have demolished infrastructure and buildings: These spaces are available for urban greening. The approach used in this case is downzoning, which refers to changing urban spaces from impactful to relatively less impactful activities for green uses, such as open spaces, community gardens and urban forests. De-densification is another option that can be considered by extending ownership of vacant spaces to residents adjacent to targeted spaces at a low cost to increase the size of lots in the neighbourhood.
- iii) Reorganising strategies: This requires the city to accept and utilise shrinkage and adjust its municipal management approaches from rational planning to communicative planning. Strategies include (a) place-based palliative planning interventions, such as improving or beautifying public spaces or constructing new public facilities, as well as facilitating dialogue sessions that bring residents together to discuss issues relating to their community, (b) building social capital, strengthening the capacity of the residents for the good of the collective, (c) alternative ownership models that recognise collective claims to the previously abandoned property based on use and management, with such claims superseding legal ownership, and (d) polycentric governance, a system that enables different spheres of governance in the city to work together to formulate and enforce rules. This strategy uses a bottom-up approach that empowers neighbourhoods and ensures holistic collective action that is tailor-made to suit the requirements and challenges of the community.
- iv) Imagining strategies: This entails reconceptualising the city, to be one without the stigma and impacts of shrinkage and decline. Weaver et al. (2017) note that this strategy is self-explanatory, but the hardest to operationalise. It envisions the future of the city, stating specific goals.

The rightsizing model attempts to put vacant and abandoned properties to fair use in shrinking cities. The model advocates for urban greening to revamp spaces in the neighbourhood, increase the value of properties adjacent to vacant and abandoned properties, rebuild social

capital and inculcate a culture of active citizenry, which works collaboratively to plan and implement local projects.

3.8 SHRINKING MINING CITIES

Shrinkage of mining cities is mainly due to mineral resources being exhausted or no longer viable economically, or by price fluctuations in international mineral markets (Martinez-Fernandez & Wu, 2007). With the increase in globalisation, some mining-dependent cities have experienced persistent population losses, with some qualifying as ‘shrinking mining cities’. The nature of economic activities in the shrinking mining cities changes drastically, reflecting a drop in the quality and number of jobs available (Marais & Atkinson, 2003). The municipal budgets of the affected cities suffer as revenue declines, while expenditures increase due to businesses leaving and divesting assets such as housing stock and infrastructure (Haney & Shkaratan, 2003).

The mining community is negatively affected by social disruptions at a time when the municipality cannot respond appropriately. The tendency is to diversify the economy, which is often difficult, and only a few mining towns are reported to have succeeded with this option (Marais, 2023). As Marais (2023) argues, a more realistic option is for governments and mining communities to accept the reality of decline. Haney and Shkaratan (2003) advise municipalities to provide the necessary knowledge and skills to the communities to enable those affected to cope with the changed conditions. However, since mining communities depend heavily on mining companies for local support, municipalities may not easily take charge of local development processes (Marais & Atkinson, 2003). Marais et al. (2022) observe a positive correlation between the sustainability of mining cities and the efforts made to rehabilitate the environment. Mining cities are advised to anticipate and plan for the decline, and shrinking cities are encouraged to use the available resources to support development processes without ignoring the implications of the decline (Marais et al., 2022).

Martinez-Fernandez et al. (2012) point out that, though mining cities have common characteristics, they experience different urban dynamics – different from other shrinking cities – and require specific solutions (Martinez-Fernandez et al., 2012). They refer to five main characteristics. First, shrinking mining cities depend on non-renewable resources, and therefore, their decline phase can be predicted, giving planners and policymakers time to plan accordingly (Martinez-Fernandez et al., 2012). However, experience shows that strategies are

only developed when the decline has begun or when exploiting the mineral resource is considered less profitable, leading to mixed results.

Second, mining communities are often located at the periphery of or far from large metropolitan areas (Martinez-Fernandez et al., 2012). So, when the mine closes, it is difficult for employees to identify alternative economic activities, especially if the mining industry uses highly specialised workers. Third, mining is linked to the global market of the respective mineral, which is vulnerable to price fluctuations and decisions taken by multinational companies. Mines are also affected by the ongoing technological advancement in mining, which results in increasingly capital-intensive operations, requiring fewer workers and constant adjustments to organisational arrangements. These ever-changing conditions create an unstable working environment in the mining sector.

Fourth, while the mining companies are forced to interact with ongoing technological changes and stay connected globally, the transfer of such knowledge and innovation to the mining communities is limited. So, most mining communities tend to be left out of the “global knowledge flows” (Martinez-Fernandez, et al., 2012, p. 248). Thus, when mines close, highly skilled employees with the requisite knowledge for the industry can migrate to other cities. Hence, the mining city loses skills and talents and becomes more disconnected from global systems, exacerbating further out-migration. Finally, when a mine closes, it leaves behind a degraded natural environment and long-lasting adverse effects on the community's health. The degradation might be such that it affects the city's reputation and appeal to outsiders, which makes it difficult to attract new residents, or even causing more out-migration. Cleanup and renewal processes become necessary. These five factors create a downward spiral of economic activities, ultimately resulting in a shrinking mining city.

While shrinking mining cities experience similar socioeconomic disruptions as other shrinking cities, the impacts and responses to decline are bound to differ due to the unique characteristics of mining cities. Resource communities experience growth and shrinkage differently compared to places that are more economically diversified. Planning in resource communities is closely linked to mining companies in the area, which have great power and influence on the outcomes. During the decline, skilled employees migrate in search of alternative economic activities, but unskilled and semi-skilled employees find it difficult to find work and often remain behind. In environments characterised by poverty, especially in developing countries, affected

communities and governments are challenged to develop effective strategies and to consider the complexities of balancing the pressure to sustain growth and address the impacts of decline.

3.9 GROWTH AND DECLINE PLANNING PARADIGMS

Globally, urban planners and policymakers tend to favour strategies for growth and expansion. Urban planners usually view decline negatively. However, decline could solve problems facing shrinking cities, by creating opportunities to repurpose buildings and improve available spaces (Campos-Sánchez et al., 2019). Scholars emphasise that urban shrinkage is complex, that each shrinking city is unique, and that the causes and effects ought to be understood for shrinkage to be addressed appropriately (Aurambout et al., 2021; Campos-Sánchez et al., 2019; Cunningham-Sabot, et al., 2013; Fol & Cunningham-Sabot, 2010; Pallagst et al., 2014; Wiechmann & Pallagst, 2012). Also, pro-growth strategies cannot address shrinkage impacts and may increase the negative consequences of the distress (Wiechmann & Pallagst, 2012). Hence, implementing appropriate decline planning is imperative to address the negative consequences of urban shrinkage. So, urban areas that were once on growth trajectories, but started to experience decline ought to change the way they plan.

The principles/rules driving decline planning differ from those behind pursuing growth and expansion. While growth is focused on improving the city's image to attract population, skilled labour and investments, the decline is on a downward spiral, and planning is for a smaller but better future. Chapter 2 Section 2.4 discussed two sets of institutions that are essential for economic growth: those that promote economic exchange and encourage trust, and institutions that influence powerful actors and protect people's rights and private property (Shirley, 2005). Table 3.2 lists economic and political rules that are replicable and have been used frequently and successfully, according to a literature review (Aurambout, et al., 2021; Weaver, et al., 2017; Wiechmann & Pallagst, 2012), to (i) drive growth and (ii) design measures against decline. The rules could be useful in planning and setting the political agenda to achieve sustainable recovery in a shrinking city.

Table 3.2: Rules for growth and decline planning paradigms

Type of rules	Rules for growth planning	Formal or Informal	Rules for decline planning	Formal or Informal
Economic rules	1. Encourage entrepreneurship and self-determination	Formal	1. Rightsizing – align the built environment with the needs of current and future residents. Infrastructure resizing, flexible transport	Formal
	2. Expand economic opportunities (often linked to the mining industry)	Formal	2. Repurpose and improve the remaining buildings and infrastructure	Formal
	3. Promote local and foreign exchanges and compete with external markets	Formal	3. Subject abandoned buildings to tax foreclosure and public auctions to avoid eroding the cities’ social capital and thereby perpetuate decline	Formal
	4. Cater for in-migration (new residents), increase residential and commercial areas	Formal	4. Where necessary, demolish abandoned residential and commercial buildings and streets to form larger land parcels and expand green spaces. Transform brownfields	Formal
	5. Reduce transaction costs	Formal & Informal	5. Encourage depopulation and renewal of vegetation in the abandoned areas	Formal & Informal
	6. Attract strategic/catalytic investments	Formal	6. Prioritise urban revitalisation, and create new urban facilities and services (metro, new urban nodes, etc.)	Formal & Informal
	7. Provide incentives (tax exemptions, subsidies) for new investments	Formal	7. Revitalise urban areas culturally and creatively. Support local social initiatives (music, fashion, media)	Formal & Informal
	8. Cater for different tastes, including sophisticated projects	Formal & Informal	8. Transform into a museum, arts and sciences, universities and research centres	Formal
	9. Attract skilled labour	Formal & Informal	9. Promote urban tourism, urban agriculture and subsistence agriculture	Formal & Informal
	10. Take advantage of economies of scale, and increase productivity	Formal	10. Adapt industries to renewable energy, green tourism, CO ₂ reduction	Formal & Informal
	11. Adapt rapidly to changing circumstances to ensure growth	Formal & Informal	11. Do environmental mitigation and ecological restoration by planting trees/vegetation	Formal & Informal

Type of rules	Rules for growth planning	Formal or Informal	Rules for decline planning	Formal or Informal
Political rules	1. Prioritise growth and expansion in socioeconomic development strategies	Formal	1. Promote community and social cohesion-oriented urban planning	Formal & Informal
	2. Secure property rights and increase the predictability of exchanges	Formal & Informal	2. Prioritise shrinkage in urban planning and seek consent through consultative, participatory processes. Build on citizens' desires and creativity	Formal & Informal
	3. Guarantee economic freedom	Formal & Informal	3. Promote and protect priority areas/sectors	Formal
	4. Inculcate a culture conducive to growth	Formal & Informal	4. Secure abandoned areas, deter crime and enforce law and order	Formal & Informal
	5. Provide government support but avoid the negative consequences of government interference	Formal & Informal	5. Revitalise through the social reuse (cultural, major events) of historic buildings with public-private investments	Formal & Informal
	6. Enforce law and order; increase policing; curb crime	Formal & Informal		
	7. Ensure efficient service delivery; run efficient revenue/tax collection systems	Formal		

As illustrated by Table 3.2, decline planning entails acknowledging and adapting to new circumstances. Meaningful engagement with citizens is important to utilise the vacant spaces and abandoned buildings, build a smaller but better living and work environment, and to be mindful of the reduced revenue and lost political power. This planning approach is challenging for shrinking cities, because the decline is associated with distress and a deviation from the expected economic growth and expansion trajectory. Political persuasion is critical for igniting hope, building social cohesion and realising the potential positives of decline.

3.10 CONCLUSION

This chapter highlighted the different interpretations of the shrinking cities concept, gave a range of definitions of the phenomenon, its causes, impacts, and actions the affected cities can take. Urban shrinkage was noted as a developed-country phenomenon, although increasingly manifesting in the Global South. Many shrinking cities in the developed economies have successfully rebuilt their shrinking economies by planning decline. In contrast, cities in the Global South find it difficult to adapt to changing circumstances mainly due to weaknesses in their planning systems and institutional environment. Resource towns often fail to diversify their economies.

The NIE theory (Chapter 2) referred to the critical role of institutions in setting the ground rules of society, determining the nature and trends of economic activities, and the costs of exchange. While growth is embraced as a positive change, decline is perceived as a stigma reflecting a city in distress, failed political and socioeconomic strategies, and a deviation from the expected development trajectory. This chapter reports that, although urban decline is common, urban shrinkage is a new phenomenon. Urban decline does not always mean shrinkage, as some neighbourhoods may continue to grow or even thrive when they face depopulation. Therefore, it is essential to study shrinkage patterns, and to investigate population loss, the economy and the built environment.

Shrinkage is a complex phenomenon attributed to interrelated forces that are closely linked to globalisation. While the rules of growth are clear and openly embraced by decision-makers and urban planners, the rules of decline are unclear and often ignored, and their impact is underestimated. Shrinkage can have devastating impacts; it mostly affects the poor and disadvantaged members of a community. While some cities can rebound from decline, others find it difficult. Often, authorities do not acknowledge shrinkage, and planners and

policymakers strive to halt and reverse the decline process using pro-growth strategies. Understanding the conceptions of urban decline and examining the different aspects of shrinkage and the multiple approaches to addressing this phenomenon is a form of institutional change.

It is essential for an urban area or neighbourhood facing decline to analyse the local, regional and global contexts, including relevant policies and regulations, to establish whether the urban area is experiencing shrinkage. The NIE theoretical framework highlights the importance of analysing the institutional environment and arrangements, to understand the behaviour of the actors. Shrinkage is examined regarding its prevalence, severity, persistence, and geographical incidence. This analysis is done using a combination of indicators (longitudinal data and spatial metrics), including data on population loss based on census data, using a threshold of 40 years; per capita and aggregate income; the presence of high rates of housing vacancy and abandoned buildings, as a result of population out-migration; and social capital.

It is also critical to identify possible causes of the shrinkage and its impact on the local labour market, housing, land use patterns, social capital, technical infrastructure, municipal finances, investment, and general state of the local economy. Also important is to understand the impact of globalisation on the local economy, the sectors most affected, businesses that have closed, new business initiatives, and those doing well or not so well, and to get a general sense of the demographics of local activities – gender, ages, levels of education and skills. The shrinking cities framework stresses the need for inclusive, bottom-up, participatory planning processes – an aspect that requires understanding of the role of civil society organisations and appropriate tools for facilitation, participants in the planning processes, frequency of planning, power dynamics, learning or empowerment opportunities for communities, communication means used, and, most importantly, the role of leadership and governance in finding solutions and enabling collaborative responses. Of critical importance is encouraging trust among the actors, reducing uncertainties and transaction costs, and enabling cooperation in crafting a new development path, which are aspects emphasised by the literature on NIE (Chapter 2).

Considering the complexities of shrinking cities, leaders should facilitate multi-stakeholder collaborations, and embrace decline as part of finding new approaches for building sustainable communities. In addition to being strategic thinkers and basing their decision-making on logic and reason, leaders should be mindful, intuitive, empathetic, and inspirational, to ensure meaningful multi-stakeholder engagements. Shrinkage can be disruptive, especially for people

living in poor environments, it can destroy social capital that is essential for creating stability in a neighbourhood, and its ability to endure shocks and stresses. Thus, leadership ought to heal the brokenness in the affected communities.

This chapter noted that, although mining cities have common characteristics urban dynamics with other shrinking cities, their decline experience is different and requires different solutions. Although decline is predictable in the mining sector and can be planned for, ongoing technological advancements, fluctuating prices of minerals, and negative impacts left behind by mining operations create an uncertain environment. As discussed in Section 2.4 (NIE theory), uncertainties create relationship tensions, lead to mistrust, increase exchange transaction costs, and hinder socioeconomic growth.

Unlike the experiences of urban centres in developed countries that have successfully diversified and rebuilt their shrinking cities, urban centres in developing countries find it difficult to reverse the effects of shrinkage and create sustainable, liveable, and economically resilient urban environments. This failure can be attributed to, among other aspects, the low levels of skills of the population, high levels of poverty and weak or missing institutions (Chapter 2). The literature shows that, as distressing as it may be, shrinkage, when accepted, provides an opportunity for communities of the affected city to work together in creative ways, by accepting the smart decline or rightsizing concepts, to build better living environments. Achieving this would entail participatory processes that allow all community members to reflect on local circumstances within the global and regional context to improve their neighbourhoods. Chapter 4 will examine the concept of mine closure and its impact on mining cities, from global to South African perspectives

CHAPTER 4: MINE CLOSURE: A LITERATURE REVIEW

4.1 INTRODUCTION

Chapter 3 described urban shrinkage and its implications for conventional urban planning and management. Mine closure is one potential reason for shrinkage. So, in areas without alternative economic sectors, mine closures leave people without work and adversely affect local economies and societies (Ackermann et al., 2018; January & Lee, 2019; Limpitlaw & Digby, 2014). Mine closures have important implications for urban management and planning (Garcia, 2008; Martinez-Fernandez, et al., 2012; Marais & De Lange, 2021) and are multifaceted and complex (Monosky & Keeling, 2021; Stacey et al., 2010). When a mine closes, most of the attention is on environmental aspects, at the expense of social impacts (Bainton & Holcombe, 2018a; Marais & De Lange, 2021; Stacey et al., 2010; Vivoda et al., 2019). The regulation of social aspects of mine closure tends to be broad and does not provide clear policy guidelines (Vivoda et al., 2019). Overall, the literature on the social impacts of mine closures is limited (Bainton & Holcombe, 2018a; Chaloping March, 2017; Roberts et al., 2000). Best practices recommend addressing not only the environmental impacts of closure, but also the social and economic impacts (Monosky & Keeling, 2021).

The international experience indicates the need for crucial role-players to be involved at an early stage, and that their involvement should be concrete and proactive involvement (World Bank, 2002; 2018; Monosky & Keeling, 2021). The mining industry has increasingly recognised that its future depends on its ability to close mines responsibly (Chaloping March, 2017). Singh (2011) describes mine closures as the big mining issue of this millennium. The industry has set guidelines for integrated mine closure processes, which require consultation with relevant authorities and affected stakeholders (ICMM, 2019; Peck & Balkau, 2005). However, a recent study found that regulators were not proactively taking the necessary steps to ensure the governance of the social aspects (Kung et al., 2020)

Bainton and Holcombe (2018a, p. 1) emphasise the need to understand the mining industry's social dimensions, including "social and economic impacts, human rights, gender considerations, cultural heritage, and human development". Furthermore, the actual costs of mine closure are poorly understood (Bainton & Holcombe, 2018a). This chapter will examine the social aspects of closure and the role institutions play in enabling and constraining social relationships and strategies. The chapter will start by discussing mine closure from a global

perspective, and explaining the nature of the phenomenon, who the social actors are, highlighting the social aspects of closure, and the trends, regulations, and challenges of closures. Next, I will attend to the critical aspects of mine closure from a South African perspective, including discussing the relevant regulations and obstacles that block efforts to achieve successful mine closures. The chapter will frame mine closure and decline within the NIE framework.

4.2 GLOBAL PERSPECTIVE ON MINE CLOSURES

This section will present an overview of critical closure issues confronting the mining industry globally.

4.2.1 Background and concepts

Until the mid-18th century, mining was mainly done on a small scale, until technological advancements of the 19th century transformed mining into large-scale operations (International Commission on Mine Closures, 2008). During the first half of the 20th century, scholars observed excessive and uncontrolled use of natural resources (Dubiński, 2013). By the second half of the 20th century (after the two world wars), mineral fields were becoming exhausted. This led to the abandonment of some mining sites (International Commission on Mine Closures, 2008). The abandoned mines created harmful surface and underground water, toxic gas emissions and chemical substances, and unstable surfaces (sinkholes, rock falls, landslides, erosion) that were hazardous for human settlements and infrastructure development (International Commission on Mine Closures, 2008; Stacey et al., 2010). Consequently, many countries developed regulations to ensure sustainability beyond mining (Wang et al., 2016).

4.2.1.1 The concept of sustainable development

In 1987, the World Commission on Environment and Development published the *Our Common Future* report, which highlights sustainable development (Dubiński, 2013). It defined sustainable development as “development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). In 2000, the United Nations adopted the eight Millennium Development Goals (MDGs) to combat extreme poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women. By 2015 the Sustainable Development Goals (SDGs) succeeded the MDGs (United Nations, 2000). The

SDGs focus on ending poverty, protecting the planet, ensuring prosperity, and setting targets for 2030.

Sustainable development provides a framework for states and industries to frame their regulations. The pressure to comply with these international obligations resulted in large mining companies launching the Global Mining Initiative (GMI) in 1998. The GMI defined what sustainable development means for the mining industry. The industry commissioned the Mining, Minerals, and Sustainable Development (MMSD) project, a two-year initiative that consulted mining industry stakeholders (MMSD, 2002). The MMSD (2002) (Appendix B) provides for closure policy and planning guidelines. Sustainable mining debates highlight the complex interconnections between the environment, economy, and society (Botezan, et al., 2020; Muswaka, 2017). However, sustainable mining and mine closure interventions emphasize environmental damage and ignore social aspects (Gregory, 2021). This unrealistic approach seeks “legal and technoscientific expertise” to address the complex problems caused by mine closure (Gregory, 2021, p. 3). The industry has acknowledged the social, environmental, and financial costs associated with mine closures, and acknowledges that the sector's future depends on how it manages mine closures (Australia, 2006; Macdonald, 2006). However, the industry has not yet embraced consultative and participatory processes to address the social aspects of mine closure (Gregory, 2021; Monosky & Keeling, 2021).

4.2.1.2 Social aspects of mine closure

The social aspects of mine closure can be classified broadly into three groups, namely, (i) the socioeconomic, political, cultural and institutional impacts, (ii) planning and management mitigating processes, and (iii) a prioritisation of the post-mining future (Bainton & Holcombe, 2018b). Bainton and Holcombe (2018b) note that the social aspects are linked to local dependencies. Yet information on the level of dependency, public participation in mine closure and how to address social aspects is scarce (Bainton & Holcombe, 2018b; Everingham et al., 2020; Sesele et al., 2021a). Furthermore, little is known globally about the actual costs of closure, the rate at which mines are closing, the closure paths and social liabilities caused by mine closure (Bainton & Holcombe, 2018b).

Some problems only manifest after closure (International Commission on Mine Closures, 2008; Stacey et al., 2010). Stacey et al. (2010, p. 388) report that illegal activities increase in the host communities, attributed to “opportunism, fear or uncertainty, and insufficient stakeholder engagement” linked to implementing the closure plan. Scholars also note that

gender concerns pose a challenge at closure, with limited research on women and mine closure (Sesele et al., 2021a). A World Bank (2018) study reports that women are likely to be affected more than men by mine closures. In addition to losing their jobs, women bear the brunt of socioeconomic burdens of increased domestic responsibilities emanating from mine closures (Sesele et al., 2021a; World Bank, 2018). The World Bank refers to out-migration, to search for alternative employment, which disrupts families and social networks, and increases in gender-based violence at mine closure (World Bank, 2018). Sesele et al. (2020) report that while the 1994 democratic transition in South Africa was crucial for promoting gender equality, mine closures reinforced gender inequalities.

4.2.1.3 Stakeholder engagement

The mining industry acknowledges that mine closure is a collaborative exercise and recognises the value of minimising negative social impacts. Globally, mining companies are obliged to engage their stockholders to obtain a social license to operate (SLO) and free and prior informed consent (FPIC) (Wang et al., 2016). The FPIC is a formal contract that refers to indigenous peoples' consultation and consent (Goodland, 2004). The FPIC concept raises questions about how, with whom, at what stage of development and for what period consent is negotiated (Kemp, 2009). Conversely, the SLO is an "informal social contract that aims to bridge the gap among the views of the most important stakeholders involved in mining activities" (Komnitsas, 2020, p. 1).

There are debates over mining and development, about issues such as who controls mining development and what role mining companies should play in socioeconomic upliftment once mining ceases (Gregory, 2021; Kemp, 2009). Negotiating genuine consent (at the start or closure) in an overly imbalanced power relationship (local communities being the weaker partner) remains a concern (Goodland, 2004). Nevertheless, there is value in stakeholder engagement in mine closure processes (Kemp, 2009; Everingham, et al., 2020; ICMM, 2019; World Bank, 2018).

The involvement of communities in mine closure processes assists mining companies to manage pressures that may arise, such as "financial constraints at the end of economic life; unfulfilled stakeholder expectations; difficulty predicting the end-of-mining and the closure transition; demobilisation and attrition of key personnel; and complex legacy impacts and unresolved grievances" (Everingham et al., 2020, p. 7). Hence, stakeholder engagement has become a vital component of mine closure processes.

4.2.1.4 The back-end approach to mine closure

Scholars highlight the need for a back-end rather than a front-end approach to closure, to ensure that the social aspects of mine closure receive attention (Marais & Cloete, 2013; Owen & Kemp, 2018; Sesele et al., 2021a). The back-end approach means stakeholders include social considerations of mine closures in closure planning from the onset. At the start of the mining projects, mining companies are keen to invest in the social aspects to secure the SLO (Gregory, 2021; Sesele et al., 2021a). The enthusiasm for social aspects decreases as the end of the mining cycle draws nearer. The back-end approach to mine closure requires (i) proactive planning of an appropriate financial response at the end of the mining life, (ii) the inclusion of social aspects of closure in the life-cycle planning of a mining operation, and (iii) responding to the social aspects of closure after formal closure (Sesele et al., 2021a). The state should play a vital role in ring-fencing closure funds at the start of the mining project, and later managing the allocated resources as per the closure plan (Ackermann et al., 2018; Lèbre et al., 2020).

4.2.1.5 Regulation of social aspects

Few countries have enacted mine closure laws related to social aspects, or have indicated that social considerations should form part of mine closure regulation (Bainton & Holcombe, 2018b; Vivoda & Kemp, 2019). The failure of most governments to develop appropriate policies and initiatives for the industry for closure is due to a lack of capacity and confidence to develop and enforce regulation (Ackermann et al., 2018; Crous et al., 2020). Organisations such as the International Finance Corporation (IFC) and the International Council on Mining & Metals (ICMM) have contributed to mine closure guidelines. While developed countries focus mainly on the conservation and stewardship of resources, developing countries emphasise the developmental aspects of mining (Limpitlaw & Hoadley, 2006).

All stakeholders should work towards creating shared value and ensuring that mining contributes to sustainable development, also post-mining development (Gregory, 2021; Wang et al., 2016). A sustainable mining community designs systems and structures to realise a net benefit, genuinely address mine closure issues and consider both the positive and negative impacts of mining (Roberts et al., 2000). Thus, an effective regulatory framework is critical for achieving sustainable mining.

4.2.2 What is mine closure?

4.2.2.1 *Historical background*

The emphasis on developing and implementing closure plans only started in the 1970s (Chaloping March, 2017). The change resulted from increased criticism of the practice of abandoning mines (International Commission on Mine Closures, 2008). Abandoning mines damaged the industry's reputation and gave rise to stricter regulation. Hence, mining companies were forced to improve the management of environmental and social aspects of mine closure (January & Lee, 2019).

A typical life cycle of a mine stretches from exploration to evaluation, construction and production, and ends with the completion of closure processes. Before the 1970s, governments did not have regulatory frameworks for mine closure. Consequently, most mining companies abandoned mines when the ore was exhausted or the mine became unprofitable (Ackermann et al., 2018; Chaloping March, 2017; Limpitlaw & Briel, 2014; World Bank, 2002). Today, mine closure management is commonly practiced by mining management. However, the focus is mainly on the mining operations, while communities seldom consider closure scenarios.

Mine closure practices initially focused on restoring the environment to its pre-mining land use (Limpitlaw & Briel, 2014). Mine closure was seen as successful when the closed mining site represented no environmental, health or safety risk. Yet, mine closure has evolved over the years to include social, economic, and cultural aspects (Limpitlaw, 2004; Limpitlaw & Briel, 2014; Limpitlaw & Hoadley, 2006). Limpitlaw and Briel (2014, p. 1) define mine closure as “transforming an active mine into a set of safe and stable landforms that are non-polluting and provide habitat and ecosystem services and support economic activities by the new land users”. Ideally, mine closure is part of the mining project life cycle and started with the pre-mine planning phase, through construction, right up to post-mine stewardship (Monosky & Keeling, 2021; Peck & Balkau, 2005).

There is a danger that mine closure can be seen as a linear process, while, in reality, this linearity is seldom the case. For example, Chaloping March (2017, p. 2) defines mine closure as a “social episode in the ebb and flow of life within communities”. Closure often entails various processes of decline and growth. Chaloping March (2017) highlights the importance of non-technical factors. Other definitions emphasise that closure represents an “economic transition” (Bainton & Holcombe, 2018a, p. 4); yet economic transitions require planning.

Despite mining companies doing life-cycle planning, the planning does not necessarily consider the social effects of mine closure. Rather than viewing it as a problem, Vivier (2020) argues that mines should embrace mine closure as a natural conclusion and an opportunity for developing innovative solutions.

4.2.2.2 Why do mines close?

Mines close for several reasons: depletion of ore reserves, changes in market conditions and financial viability, labour unrest, adverse environmental conditions and social upheaval or political instability (Limpitlaw & Hoadley, 2006; Neingo & Tholana, 2016; Peck & Balkau, 2005; Swart, 2003). Mine closures may happen prematurely, before the ore is depleted. Sometimes, closure is involuntary, in the case of external factors, such as a lack of funding or permits (Lèbre et al., 2020). Unplanned closure can happen when the economic and political conditions are unpredictable. Closure can be sudden, and there may be no resources available for rehabilitation or decommissioning of mining infrastructure. Hence, there is a need to adequately provide for such eventualities (Ackermann et al., 2018).

There are various forms of closure. In some cases, closure means that mines abandon their operations. The absence of regulation and inadequate enforcement mechanisms in some countries perpetuates the practice of abandonment (Mhlongo & Amponsah-Dacosta, 2016; Peck & Balkau, 2005).

‘Care and maintenance’ is a type of closure. Care and maintenance enables the mining company to reduce operational costs, with the option to resume operations when conditions become more favourable (Ashby et al., 2016). Under care and maintenance, the maintenance of the sites, infrastructure and equipment continues (Ashby et al., 2016; Lèbre et al., 2020). Nevertheless, governments view care and maintenance as an early indicator of closure (Lèbre et al., 2020). A mining site can remain in care and maintenance for an extended period, and it can have social and environmental consequences. Lèbre et al. (2020) report that the longer the mine remains under care and maintenance, the more likely it is to close. Legally, mines under care and maintenance are not closed and, therefore, not obliged to comply with mine closure legislation (Sesele et al., 2021a). Ashby et al. (2016) recommend incorporating the planning and monitoring of rehabilitation of mines in care and maintenance in the mine closure framework to avoid this gap in the legal arrangements.

A study of gold mines placed under care and maintenance in the West Australia Goldfields found that maintenance seldom occurs (Ashby et al., 2016). Owners of mines under care and maintenance often sell these to smaller companies (Perkins et al., 2020; Sesele et al., 2021a; Watson & Olalde, 2019). This practice, called ‘pass the parcel’, decreases the likelihood of effective mine closure and rehabilitation (Perkins et al., 2020). Sesele et al. (2021a) observe that transfer of ownership poses a challenge for the host community. They must deal with different mine representatives and possibly change of closure budgets, plans and priorities. Also, the new owner may not take over social and environmental commitments and may abandon existing closure plans.

4.2.2.3 Closure scenarios

Peck and Balkau (2005) identified five mine closure scenarios: ordered advance and completion, strategic revision of final mine-life years, ordered retreat, retreat in disarray and dereliction of duty.

Ordered advance and completion represent the best-case scenario (Limpitlaw & Hoadley, 2006). In this scenario, closure planning forms an integral part of all phases, starting from the pre-mining planning stage until the depletion of the resources. Thus, the plan guides mine site decommissioning and rehabilitation works, thereby enabling “physical and chemical stability of environmental resources, protection of public health and beneficial and sustainable after-use of the site in the long term” (Peck & Balkau, 2005).

Strategic revision of final mine-life years is a scenario where mining operations are ongoing, but not following basic principles and guidelines to allow for effective mine closure. However, it is possible to incorporate mine closure planning into existing practices. This scenario allows for proper management of the financial aspects of closure during the mine life cycle. Although options for decommissioning and rehabilitation works are limited, it is still possible to achieve the desired outcomes.

This ordered retreat scenario represents instances when a mine must close prematurely due to “changes in external and internal economic factors that make reserves unworkable before anticipated closure time” (Peck & Balkau, 2005, p. 38). However, adequate and acceptable decommissioning and rehabilitation are still possible with effective closure planning.

In the case of retreat in disarray, a mine closes prematurely due to “changes in external and internal economic factors that make reserves unworkable before anticipated closure time”

(Peck & Balkau, 2005, p. 38), and no closure plan is in place. Legal action is likely, and authorities may seek to recover costs for rehabilitation. The likelihood of recovering the necessary costs is minimal, and it creates adverse mining legacies.

In the case of the dereliction of duty, the mining company opts for asset stripping, and removes recoverable assets from the reach of the authorities. This criminal behaviour will likely lead to ongoing legal action.

Only the first three scenarios above are acceptable (Peck & Balkau, 2005). The last two scenarios are likely to harm local communities and increase the burden for the state. The situation is exacerbated when the state cannot monitor mining operations, enforce mine closure regulations, or protect the rights of the affected communities.

4.2.2.4 Social and economic implications of mine closure

Mine closure was ranked as one of the top operating risks for the industry (Mining Journal 2017, quoted by Vivoda et al., 2019). Mining creates long-term dependencies, and changes a mining community's local economy, livelihoods, landscape, demographics, social networks and services. In addition, mine closure can change the social landscape, including demographic trends and social and cultural transformations (Linde et al., 2012; Petrova & Marinova, 2013), by disrupting these realities (Bainton & Holcombe, 2018b; Vivoda et al., 2019). Discontentment about the pollution left behind by mining operations and unmet socioeconomic expectations are also evident (Bainton & Holcombe, 2018a). As Bainton & Holcombe (2018a) observe, the challenges and risks of mining are illuminated towards the end of the project life cycle.

The actual cost of closure is poorly understood (Bainton & Holcombe, 2018b). Mine closure costs seldom include the social cost of mine closure. Bainton and Holcombe (2018b) note that some mining companies deliberately devise means of avoiding mine closure, which ultimately increases the social cost of closure; a large section of the industry avoids having to pay the total closure cost. Such avoidance makes it difficult to manage the social aspects of closure and ensure accountability. Vivoda et al. (2019) summarise the social aspects disrupted by mine closure, and their indicators in Table 4.1.

Vivoda et al. (2019) identified 16 social aspects of mine closure, as listed in Table 4.1, and their indicative elements. The social aspects can have negative or positive impacts and can also be categorised under economy and income, employment, environment, health and safety,

demography, human rights, and land use (Mancini & Sala, 2018). The social aspects are interlinked, they may manifest at a local or national level, and their prevalence differs from area to area.

Table 4.1: The social aspects of mine closure

Social aspect	Indicative elements
Economy	<ul style="list-style-type: none"> Local economic activity (diversity and dependencies) Household income Local living standards
Business	<ul style="list-style-type: none"> Local businesses have development opportunities in mining Business opportunities in other sectors
Employment	<ul style="list-style-type: none"> Local employment opportunities in mining Local employment in other sectors Local employment stability/volatility
Security	<ul style="list-style-type: none"> Social order and safety (e.g., tensions, crime, violence)
Education and training	<ul style="list-style-type: none"> Local skills development in mining and other sectors Access to quality education and training
Infrastructure	<ul style="list-style-type: none"> Local transport (e.g., public buses, roads, airports) Critical infrastructure (food supply, power supply, water supply, telecommunications)
Amenity	<ul style="list-style-type: none"> Local aesthetic and recreational resources (e.g., heritage sites, parks and recreation areas, communal areas) Local culture, arts and sports (including facilities)
Livelihoods	<ul style="list-style-type: none"> Local livelihoods (e.g., access to land, food, water and shelter that affects livelihoods)
Land	<ul style="list-style-type: none"> Local land ownership, access and use Recognition of traditional/customary ownership
Housing	<ul style="list-style-type: none"> Local housing quality, availability and affordability
Health	<ul style="list-style-type: none"> Community health and well-being Access to quality health and social services
Environment	<ul style="list-style-type: none"> Environmental aspects that affect social conditions (e.g., quality of air, water, land, ecosystem)
Demography	<ul style="list-style-type: none"> Local population dynamics (e.g., growth/decline, migration, ageing, gender balance)
Participation	<ul style="list-style-type: none"> Stakeholder participation in closure planning and closure and post-closure processes (including decision-making)
Inclusion	<ul style="list-style-type: none"> Inclusive stakeholder engagement, including with vulnerable and otherwise marginalised groups (e.g., indigenous peoples, women, ethnic minorities, disabled, elderly, young) in closure planning and closure and post-closure processes (including decision-making)
Social (general)	<ul style="list-style-type: none"> General socioeconomic considerations Social considerations in financial assurance mechanisms

Source: (Vivoda et al., 2019, p. 9)

4.2.2.5 Social aspects of mine closure regulations

Globally, mining companies must close mines per regulations (rules). Vivoda et al. (2019) report that few countries have developed specific laws and regulations for the social aspects of mine closure. However, regulation guidelines emphasise the need to involve affected communities. Not enough guidelines exist for the social aspects (Monosky & Keeling, 2021). Furthermore, there are inconsistencies in closure regulations, a disregard for indigenous knowledge, limited attention to local participation and a lack of political will (Bainton & Holcombe, 2018b; Monosky & Keeling, 2021). Often, closure requirements fall under the broader mining and environmental legislation. These aspects receive limited attention in mining company disclosures (Crous et al., 2020). Stacey et al. (2010) link incapacity to people-related constraints, institutional failure, and an inadequate legal framework. Developing countries face the challenge of adapting the industry's governance regulations and guidelines to suit their local contexts.

Experiences of developed countries dominate mine closure discourse and regulations (Chaloping March, 2017). Often, local communities directly affected by mining operations cannot participate in global events that deliberate on issues affecting the industry (Bainton & Holcombe, 2018a). Consequently, the global discourse omits critical historical, political, and sociocultural elements that shape institutions and influence mine closures in developing countries. Furthermore, an overview of the literature in the public domain on the social aspects of mine closure shows that most of this information is from private companies or expert practitioners (Bainton & Holcombe, 2018a).

Mine closure is very site-specific, and often, information on closure requirements and closure execution plans is insufficient in the available literature and regulations (Stacey et al., 2010). There is no one-size-fits-all model; thus, considering each site's fundamental social, environmental, and economic aspects when designing closure processes is vital. Closing a mine ought to be a consultative process that brings together mining companies, governments, and communities to find workable solutions (Limpitlaw, 2004).

4.2.2.6 Complexity of mine closures

Mine closures are complex processes that require stakeholders to commit to the process over a long time. And although closure is inevitable, it is difficult to predict when a mine will close (Everingham, et al., 2020). The complexities in mine closure are predominantly due to many

stakeholders with diverse interests, values, and abilities to influence closure (Chaloping March, 2017; Lane & Kamp, 2013; Linde et al., 2012). In addition to the different interests of stakeholders, each mining community is unique in regard to culture, political preferences, spatial location, environmental aspects and societal views on resource development and distribution (Linde et al., 2012; Roberts et al., 2000). Inevitably, issues of power, authority and legitimacy feature prominently in research on this topic (Lane & Kamp, 2013). The imminence of mine closure exacerbates the situation, adversely affects the local economy, leaves people without work, disrupts families and social networks, and creates other unintended social consequences. The inherent tensions caused by such arrangements make it challenging to attain successful mine closure, and highlights the need for adequate institutional arrangements to facilitate such a complex process.

Figure 4.1 summarises the interests and competing agendas of the three main stakeholders. Mining companies are attracted to mining for profit; communities see an opportunity for employment and social upliftment. Mining is an opportunity for governments to develop infrastructure and collect tax revenue.

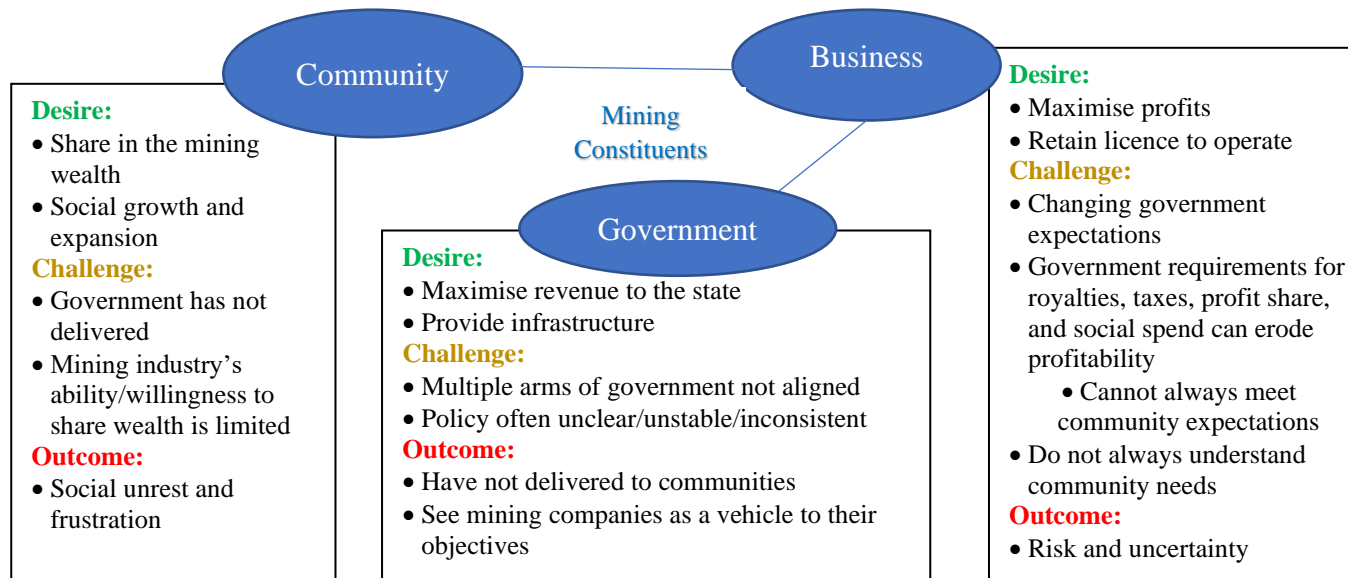


Figure 4.1: Key stakeholder's interests and competing agendas

Source: Adapted from Lane and Kamp (2013)

Differences among the stakeholders ultimately determine the mining closure activities required. These activities include a timeframe, the nature of relationships that should be formed and nurtured, and the resources needed (Chaloping March, 2017). Although each mining community is different, Chaloping March (2017, p. 2) observes that the “factors that determine the design, implementation and monitoring of mine closure strategies are international in dimension”.

Figure 4.2 is Chaloping March’s (2017) illustration of the complexity of the social aspects involved in mine closure at different levels of society. The diagram shows that commodity prices and discussions on sustainable development happen globally. These influence the national objectives, priorities, policies and civil society activities (Ovals A and B). Oval B depicts the main factors in the local context, including the history of mining, customs and traditions, economic activities, workers' mobility and labour recruitment practices. Local actors determine mine closure strategies and shape the post-mining future. Scholars emphasise the importance of involving affected communities in the initial closure design process (Bainton & Holcombe, 2018a). Oval A shows the goals, values, interests, and aspirations pursued by the mining project's key stakeholders (mining company, local government, communities, and other social actors), which mine closure disrupts. The broken lines illustrate the porous boundaries and interconnectedness of the many factors, which define a unique path for each mine closure process.

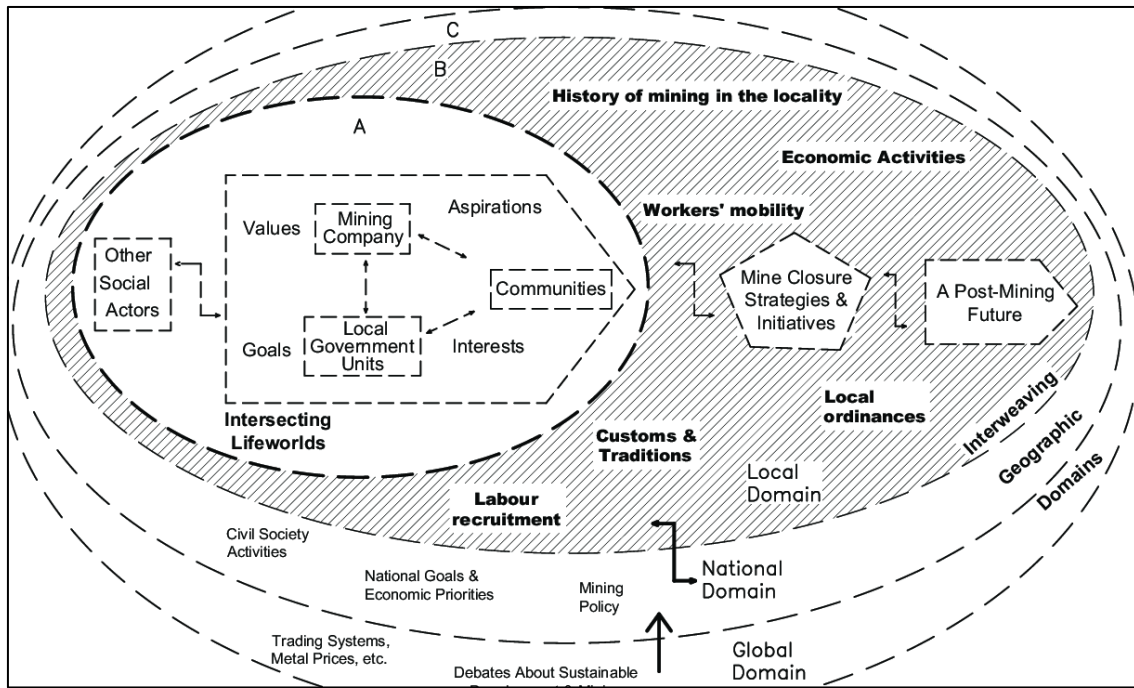


Figure 4.2: Different domains of social actors in a mine closure social terrain

Source: Chaloping March (2017)

Chaloping March (2017) emphasises the intersecting relationships of the social actors. There are contrasting views of mine closure. Mining companies view closure as a project and an obligation they have to fulfil according to set regulations. Mines emphasise compliance rather than attaining sustainable development (Stacey et al., 2010). Often, the approach is largely in the self-interest of mines (Lèbre et al., 2020). Some mining companies avoid closure responsibilities (Bainton & Holcombe, 2018a). Conflicts are bound to emerge between different social groups due to the varied intricacies within communities. Although the environmental aspects are crucial for developing a well-planned mine closure process, people should be at the centre (Chaloping March, 2017). Mine closure practitioners should integrate the technical, scientifically proven solutions with the social and cultural interpretations of the local circumstances (institutions) and probe how specific views are influenced by power relations (Chaloping March, 2017).

Governments must provide opportunities for sustainable development beyond mine life cycles. Furthermore, the higher the local dependency on mining regarding economic base infrastructure, service provision, and governance, the more severe the impacts of mine closure will be (Bainton & Holcombe, 2018a). Over-reliance on mining companies hampers the local community's ability to drive development initiatives, which adversely affects social

sustainability in the long run (Petrova & Marinova, 2013). The greater the impact of mining on the economy, the greater the need for appropriate closure (McKenzie, 2019). Vivoda et al. (2019) report that few countries have developed specific laws and regulations for the social aspects of mine closure. Thus, developing skills to address social issues and deal with complex social environments is vital for the mining industry (Bainton & Holcombe, 2018a).

4.2.2.7 Guidelines for mine closure

The World Bank (2002) lists three requirements for successful closure. Firstly, mining companies must proactively strive to leave behind an undamaged environment, sound social impacts and a positive legacy. Secondly, local communities must proactively ensure the sustainability of the benefits of mining, and be mindful of future generations. Lastly, governments should provide the necessary legal frameworks, ensure closure planning commences early, and support communities to manage environmental and social problems.

The ICMM (2019) provides guidelines for mining companies and advocates for integrated mine closure planning and implementation. ICMM guidelines recommend developing and reviewing a closure plan at different stages to show how temporary or sudden closure could affect the plan. As indicated in Figure 4.3, stakeholder engagement and the planning and implementation of social transition should be ongoing. The ICMM approach enables the mining project to include mine closure in the mine design and business plan. The 2018 ICMM mine closure framework is illustrated in Figure 4.3, and the guidelines for good practice (ICMM, 2019, pp. 72-130) are outlined below. The ICMM proposes early integration, the involvement of various stakeholders, progressive closure, planning the social transition, understanding the total cost of mine closure, an implementation plan, continued monitoring and relinquishing old sites.

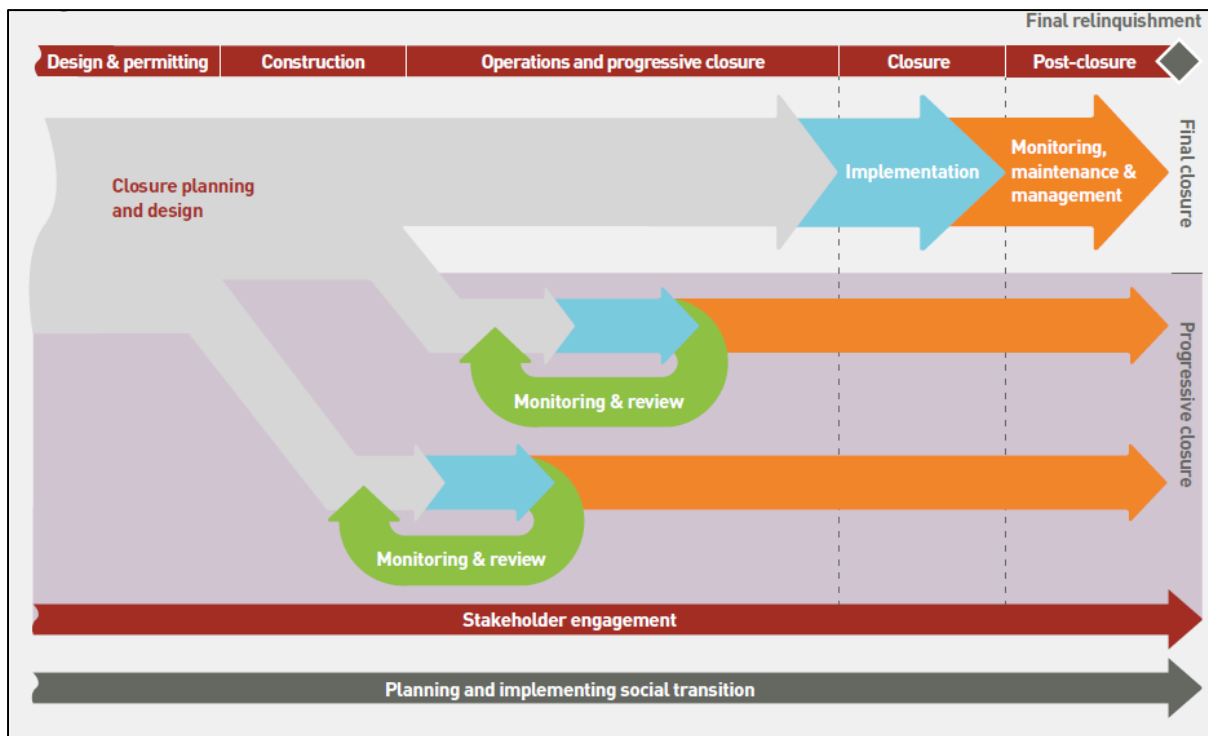


Figure 4.3: Mine closure framework

Source: ICMM (2018)

The ICMM guidelines indicate how mining companies ought to implement mine closure processes. Although mining companies can be blamed for ineffective closure practices, planning for decline or closure is not only the responsibility of mining companies. The process should include governments and civil society (Marais & Cloete, 2013). Scholars acknowledge that managing social aspects of mine closure is complex and requires long-term commitment and genuine cooperation between diverse groups from within and outside the host community (Bainton & Holcombe, 2018b; Monosky & Keeling, 2021; Stacey et al., 2010). Stacey et al. (2010) refer to leading practices recommended for all parties to improve the consideration of social aspects in mine closure processes. Other practices recommended are effective communication systems, to enable frequent and open engagement, and appropriate stakeholder representations. Sufficient capacity, for both governance and management, for implementing the closure plan is vital, together with a legal framework that supports formal contracts and minimises transaction costs. Supportive formal and informal institutions to enable conflict resolution and effective enforcement of rules, and good governance to ensure the execution of activities as agreed, are of the utmost importance.

4.3 MINE CLOSURES IN SOUTH AFRICA

4.3.1 Background

Historically, mining has been a critical driver of the South African economy. Like other developing countries, South Africa has experienced numerous mine closures over the past decades. These closures are due to depleted mineral resources, global competition and mining competitiveness. Mines have also closed due to liquidation and failure to comply with statutory requirements, and natural incidents, such as landslides and earthquakes (Ackermann et al., 2018). Mine closure causes significant social disruption of resource towns (Matebesi, Marais, & Nel, 2024). Sudden mine closures are attributed to vague care and maintenance regulations, weaknesses in enforcing integrated closure plans, mine planning and business rescue, and the winding-up procedures (Mpanza et al., 2021). Studies report that the detrimental impacts of mining can be found in human settlements near active or abandoned mines, causing a risk to a large population (Auditor-General, 2009; Muswaka, 2017; Perkins et al., 2020). The Auditor-General reports that the DMRE had 6 100 abandoned mines to rehabilitate, most of which closed before 2002 (the MPRDA 2002 compels mines to rehabilitate their mine sites fully) (Auditor-General, 2022). Approximately 600 abandoned mines are in Gauteng province alone (Phala et al., 2017). The Council for Geoscience estimated rehabilitation costs for the abandoned mines to be R30 billion, and the bulk of this (R28.5 billion) was earmarked for the 1 730 mines classified as high-risk mines.

According to StatsSA (2017), the mining sector's contribution to the GDP increase in the 1970s, to peak at 21% in 1980 – a rise attributed to increases in gold prices. Employment in the sector peaked in 1987 at just over 760 000 individuals, but dropped to about 490 000 in 2015. The industry's contribution to GDP decreased, reaching 8% in 2017,⁵ just below manufacturing (13%) and transport and communication (10%) (StatsSA, 2017). Employment in gold mining operations nationwide reached its peak in 1987, at 570 000 employees, and has been steadily declining, with an estimated 470 000 employees in 1990, 170 000 in 2001, 144 799 in 2011, 110 000 in 2017, and 93 841 in 2022 (Cowling, 2023; Harington et al., 2004; Marais & Sesele, 2019).

⁵ StatsSA (2017). *Economic sectors that contribute to South Africa's GDP: Q3 2017*.

4.3.2 South Africa’s mine closure regulation

Table 4.2 summarises what the legislation expects should happen if effective mine closure is to be achieved. Mine closure was first regulated in 1991. Later, the MPRDA 2002 transformed all aspects of the mining industry, although the emphasis remains on the environmental factors of mining (Marais, 2013; Swart, 2003). Marais (2023) explains that legislation addresses mining rights disparities and adverse environmental and socioeconomic impacts. Previously, mining companies committed to supporting mining communities through CSR, a concept introduced to address social problems, counteract the pressures of unfair and unsustainable mining practices and alleviate poverty (Siyobi, 2015),

Table 4.2: South Africa Mine Closure Regulations

Regulation	Purpose of regulation	Mine closure requirements/implications
Constitution of South Africa, 1996 Bill of Rights, Section 24	To ensure that everyone has a right to: <ul style="list-style-type: none"> • an environment that is not harmful to their health or well-being • an environment protected for the benefit of present and future generations through reasonable legislative and other measures 	<ul style="list-style-type: none"> • Mines to conduct closure activities with due diligence and care for the rights of others • Claim damages from mining companies for harm caused by mining activities, even after closure
White Paper: A Minerals and Mining Policy of South Africa - 1998	<ul style="list-style-type: none"> • Government’s endeavour to minimise the negative social consequences of decline and mine closure • To promote the development, reverse apartheid policies and address the current imbalances 	<ul style="list-style-type: none"> • Mines to: <ul style="list-style-type: none"> ○ Consult extensively with the workforce in the event of significant down-sizing ○ Seek government assistance for retrenched workers ○ Equip retrenched employees with skills • Establish a Social Plan Fund to support strategies/ programmes negotiated between employers and workers facing structural employment decline. • Government obliged to assist key stakeholders and “mine-linked communities in anticipating and managing the consequences of large-scale job losses” (DMR, 1998, p. 52)

Regulation	Purpose of regulation	Mine closure requirements/implications
<p>The Mining Charter</p> <p>First developed in 2004, amended in 2010 and 2018</p>	<ul style="list-style-type: none"> • To address the vast economic inequalities by increasing participation by historically disadvantaged South Africans in economic development (DMR, 2018) • Give effect to Section 9 of the Bill of Rights (equality clause) • Transform the mining industry 	<ul style="list-style-type: none"> • Ensures meaningful participation of historically disadvantaged South Africans under the MPRDA, covering ownership, mine community development, procurement, beneficiation, house and living conditions, human resource development and employment equity
<p>National Environmental Management Act, 1998 (Act No 107 of 1998)</p>	<ul style="list-style-type: none"> • To provide for cooperative environmental governance by setting the national norms and standards for Integrated Environmental Management (Section 24) 	<ul style="list-style-type: none"> • Requires government and all state organs to cooperate, consult and support one another • Imposes a duty of care and remediation of environmental damage on any person who causes, has caused or may cause significant pollution or degradation of the environment (Section 28) • Provides for the legal standing of people to enforce environmental laws and private prosecution, respectively (Sections 32 and 33)
<p>Minerals and Petroleum Resources Development Act of 1991 (Act No. 50 of 1991)</p> <p>The first legislation that regulated mine closure in South Africa</p>	<p>The repealed Act intended to regulate the following:</p> <ul style="list-style-type: none"> • Prospecting for and the optimal exploitation, processing, and utilisation of minerals • Orderly utilisation and rehabilitating of the land surface during and after prospecting and mining operations <p>The Act gave effect to Section 24 of the Constitution, emphasising the importance of early planning, rehabilitation and economic diversification (Ackermann et al., 2018; Marais, 2013)</p> <p>It was repealed by the Mineral and Petroleum Resources Development Act 28 of 2002</p>	<p>Introduced:</p> <ul style="list-style-type: none"> • An approved environmental management programme (EMP) based on an environmental impact assessment • Permit holder responsible for the rehabilitation of the surface of the land concerned (Section 38) by the approved EMP in terms of (Section 39) in all phases until closure • Polluters must pay for pollution • Permit holder must pay for cleanup of pollution. • Government (Department of Minerals and Energy) to monitor EMP compliance and appropriateness and guide mines to adequate and acceptable closure. • Permit holder to notify the director: Mineral Development in writing at least 14 days before they intend to permanently or

Regulation	Purpose of regulation	Mine closure requirements/implications
		<p>temporarily cease operations (Section 54).</p> <ul style="list-style-type: none"> • Permit holder to comply with all relevant provisions of the Act until a closure certificate has been issued (Section 12) <p>Policy guidelines (included in the MPRDA of 2002) (Swart, 2003):</p> <ul style="list-style-type: none"> • Effective planning for closure to start early in the life of a mine, even before mining operations commence • Post-mining land use was identified, and rehabilitation costs and actions were adopted accordingly • Residual impacts identified must be described in the EMP, and arrangements must be made to deal with them adequately
<p>Minerals and Petroleum Resources Development Act of 2002</p> <p>This is the primary statute regulating prospecting and mining in South Africa</p>	<p>To affirm the State's obligation to:</p> <ul style="list-style-type: none"> • Protect the environment for the benefit of present and future generations • Ensure ecologically sustainable development of mineral and petroleum resources • Promote economic and social development 	<ul style="list-style-type: none"> • Adopts sustainable development principles to guide closure and post-closure management • Prescribes collaborative planning between municipalities and mining companies and between government departments • Sets requirements for an environmental impact assessment and EMP or plan to identify, mitigate and manage the environmental impacts emanating from prospecting or mining activities (Section 37) • Directors of mines are liable for any damage, degradation, or pollution caused by the company they represent or represent and manage sustainable closure (Section 38) • Mining company to apply for a prospecting right or permit together with an application for environmental authorisation (includes submission of an environmental assessment, EMP and closure plan, sufficient financial provision for rehabilitation closure)

Regulation	Purpose of regulation	Mine closure requirements/implications
		<ul style="list-style-type: none"> • Makes provision for waste management of residue stockpiles and deposits throughout the life cycle of the mine, including closure and post-closure management of deposits (Section 42) • Sets principles for mine closure, transfer of environmental liabilities to a competent person, provisions for issuing of a closure certificate by the minister, the content of the closure plan (Section 43) • Provisions for retaining or removing buildings and structures (Section 44). • The minister to take urgent remedial action on environmental degradation and pollution and recover costs (Section 45) • Minister to rehabilitate abandoned and ownerless mines/dumps, register such sites in the title deeds of land and transfer liability for rehabilitation work being undertaken to the responsible landowner (Section 46) • Mining companies to provide an SLP as a prerequisite for obtaining mining rights.
Mine Health and Safety Act, 1996 (Act No 29 of 1996)	To provide for the protection of the health and safety of employees and other persons at mines.	<ul style="list-style-type: none"> • Maintain a healthy and safe mine environment for employees and those affected by the mine during commissioning, operation, decommissioning, and closure (Sections 2 and 5) • Provide adequate health and safety equipment to assess and respond to risk • Establish a system for medical surveillance • Employees can leave a dangerous working place if circumstances arise (Sections 19, 22 and 23)
The National Water Act, 1998	To ensure the sustainable use of water by protecting the quality of water resources for the benefit of all water users.	<ul style="list-style-type: none"> • Mining companies are expected to take all reasonable measures to avoid any pollution

Regulation	Purpose of regulation	Mine closure requirements/implications
	Reduce and prevent pollution and degradation of water resources.	from occurring, continuing, or recurring (DWA, 2010) <ul style="list-style-type: none"> • An integrated mine water management system that complies with relevant legislation is required • The government's Mining Sector Management Strategy was developed to promote best practices for preventing water pollution and minimise impact of mining operations
Nuclear Energy Act, 1999	To prescribe measures regarding discarding of radioactive waste and storing irradiated nuclear fuel and provide for incidental matters.	<ul style="list-style-type: none"> • Radiological requirements to be met before a closure certificate is granted.
National Mine Closure Strategy, 2021	To align individual mine closure to regional mine closure plans, minimise the negative impacts of closure on affected communities, efficiently manage water at mining and mineral processing sites, integrate EMP, avoid duplication of efforts and spending, and ensure socioeconomic sustainability	Achieve integration and sustainability through: <ul style="list-style-type: none"> • Alignment of EMPs to manage interconnectedness • Align closure plans to create a self-sustaining ecosystem after closure • Integrate EMPs, SLPs and CSI objectives • Contribute to a regional mine closure fund • Develop mine closure policy • Critically assess applications for care and maintenance (including reason for closure, contingency plans, and ongoing maintenance).

Source: Author's compilation (2023)

The MRDPA (South Africa, 2002) requires mining companies to provide an SLP before obtaining mining rights (DMR, 2010). There should be collaborative governance between local government and mining companies, as the SLPs ought to be aligned with respective municipalities' integrated development plans (Siyobi, 2015; Van der Watt & Marais, 2021). The SLP necessitates applicants for mining rights to develop and implement human resources development programmes, mine community development plans, housing and living conditions plans, employment equity plans, and processes to save jobs and manage downscaling and closure. The aim is to prepare employees, assist them with alternative employment or sustainable livelihood opportunities (DMR, 2010), and enable municipalities and mining

companies to integrate their plans. However, the outcomes of the processes have proved undesirable for various reasons, including the need for increased commitment from the local and national governments to address the impacts of mining and mine closure (Marais, 2013). Furthermore, SLP guidelines that govern the development of mining communities and mine decline need to be stronger and more effective (Perkins et al., 2020).

South Africa has stringent environmental legislation that requires mines to plan for closure, including rehabilitating the environment (Marais & De Lange, 2021). Marais and De Lange (2021) report that, during apartheid, mining companies were, by law, barely obliged to contribute to local development. Few mining communities benefited from mines. This concern became the focus of postapartheid regulation for the mining industry. Currently, the mining industry is integral to the government's efforts to address the two main objectives of the National Development Plan: to eradicate poverty and reduce inequality by 2030 (National Planning Commission, 2012; DMR, 2018). The Mining Charter was added to the regulatory framework to address historical imbalances and promote transformation. Critics of the Charter believe it creates more uncertainties for the mining sector because, unlike legislation, which goes through rigorous parliamentary processes, the Charter as a policy document can be changed easily (Mbazima, 2020).

Achieving the desired transformation requires concerted efforts from all stakeholders, a conducive environment for credible commitments, and supportive institutions to design and implement development initiatives and enforce the law. Scholars explain that the current policy framework meets international standards (Alberts et al., 2017; Watson & Olalde, 2019). However, mining legislation is highly complex, and implementation and enforcement of the relevant regulation pose numerous challenges (Alberts et al., 2017). Furthermore, the government often finds it challenging to hold mining companies accountable, as many refuse to accept responsibility for acid drainage from mines and other environmental and social costs emanating from mining operations (Van Eeden & Durand, 2009). Sadly, the affected communities ultimately carry the burden of environmental and social costs, some of which manifest long after mining operations have ceased.

4.3.3 Socioeconomic consequences of mine closures in South Africa

Research on the socioeconomic impacts of mining and mine closures has increased (Lane & Kamp, 2013; Matebesi et al., 2024). However, data on the status of mine closures is lacking (Watson & Olalde, 2019). In addition to environmental damage, social aspects are prevalent,

as mine closures distress local communities, and miners often struggle to find alternative employment (Perkins et al., 2020). When the local economy plummets, employees of mining companies end up with houses they cannot sustain or sell (Marais & Cloete, 2013). The public and the environment endure most of the residual and latent impacts of mining activities (Van Tonder et al., 2009; Muswaka, 2017).

4.3.3.1 Challenges regulating social impacts

Despite improved regulations, the outcomes of closure processes are poor (Perkins et al., 2020). Stacey et al. (2010) studied the closure dynamics of 36 mines in the Mpumalanga and KwaZulu-Natal provinces. They found that closure plans were vague and stakeholder engagement, skills development and economic diversification started too late. Problems of closure cited by the study include (i) confusion about the management of social (as opposed to environmental, engineering, or other physical) risks; (ii) inappropriate training for self-employment; (iii) the failure of job creation schemes; (iv) illegal occupation of houses; and (v) vandalism of infrastructure and facilities (Stacey et al., 2010, p. 379). As many as 70 000 illegal miners (*zama zamas*⁶) are estimated to be operating in South Africa's abandoned mine shafts (Mpanza et al., 2021), which causes loss of revenue, taxes and employment opportunities, and increased crime.

A recent study of crime trends in South African cities from 2009 to 2018 found that mine decline and closure contributed to social disruption in the hosting communities (Marais, 2021). The increase in crime when mines closed was attributed to (i) the difficulty of upskilling low-skilled workers for alternative employment, (ii) illegal mining springing up, raising the level of crimes such as property destruction, robberies and sexual offences, and (iii) the inefficiency of police in cities on the decline. Mining companies are blamed for failing or starting when it is too late to develop long-term strategies for the post-mining phase (Perkins et al., 2020).

4.3.3.2 Government's role in managing social impacts

The government has a lead role in managing social impacts; however, efforts to create employment and alleviate poverty have been slow, thereby eroding public confidence in the government and causing social unrest. There has been an appeal for the government to take more control of the country's resources (Lane & Kamp, 2013). The government should build

⁶ *Zama zamas* are individuals who engage in illegal mining in South Africa. It is an isiZulu phrase that means to 'keep on trying, gambling, striving or attempting to obtain something'.

its capacity to regulate and enforce mine closure regulations, which should compel stakeholders to fulfil their roles. There is increasing statutory pressure on the mines to ensure successful closure (Van Druten & Bekker, 2017). The social impacts of mine closure are diverse, complex, and unique to each area. The complexities make managing mine closure difficult. The government plays a critical role in developing and enforcing effective mine closure regulations.

4.3.4 Limitations for mine closures in South Africa

Mine closure in South Africa is problematic and mines experience numerous problems (Van Druten & Bekker, 2017; Watson & Olalde, 2019). Watson and Olalde (2019) have noticed that mine closure systems have been ineffective, and the consequences are clear from (i) the number of abandoned mines and operations on extended care and maintenance, (ii) the on-selling of mines to less well-resourced companies to close, and (iii) increasing illegal mining activities. Humby (2017) observes that the causes of unplanned or poorly executed mine closure processes are rooted in various institutional failures in the private and public sectors. Attempts to achieve successful mine closure face various interrelated challenges.

4.3.4.1 Planning and development strategies that do not embrace the reality of closure

South Africa has competing agendas that are difficult to reconcile. In South Africa, the key priorities are eradicating poverty and reducing inequality by 2030 (National Planning Commission, 2012). Ultimately, pressures from historical realities, local power dynamics, changing policies and an overemphasis on growth and development overpower the government's need for long-term planning (Marais & De Lange, 2021). South Africa's development policies and strategies are pro-growth, making it difficult for municipalities to consider decline or closure (Marais & De Lange, 2021; Marais et al., 2016).

Chapter 3 referred to the value of planning for decline, in order to improve the quality of life of people remaining behind (Weaver et al., 2017). In a 'shrinking city', a planning paradigm that recognises decline and its social impacts, addresses issues of land use planning concerns and prioritises meaningful citizen participation. In mining, decline is inevitable. Therefore, long-term planning that considers the adverse impacts of mining and life after closure is crucial. Neither national policy or local strategy generally anticipate mine closure or decline (Marais & De Lange, 2021). The government prioritises short-term growth plans and ignores decline (Marais & De Lange, 2021). Given the tension between pro-growth and decline, there is a

disjuncture between the legislative framework and policy designed to guide socioeconomic transformation (Marais & De Lange, 2021; Perkins et al., 2020).

4.3.4.2 Lack of political will and capacity of government

Although South Africa's mining legislation corresponds with international best practices, the government lacks the capacity (financial, technical and experience-based) to implement it (Alberts et al., 2017; Nzimande & Chauke, 2012; Van Druten & Bekker, 2017; Watson & Olalde, 2019). Furthermore, the legislation is complex and involves different government departments, and assigned roles and responsibilities overlap (Van Tonder et al., 2009; Van Druten & Bekker, 2017; Watson & Olalde, 2019). There is also a lack of political will to ensure adequate enforcement (Muswaka, 2017). Similar to the international experience, mines are often abandoned, and sites are not rehabilitated (Van Druten & Bekker, 2017).

The industry highlights a lack of incentives for mining companies to apply for closure (Watson & Olalde, 2019). Some companies opt to sell to smaller companies, thus, "transferring mining rights to a lower-cost producer" and reducing the likelihood of attaining effective closure (Watson & Olalde, 2019, p. 2). The circumstances pose a problem, partly because the data required to corroborate what is happening in the affected communities are not readily available (Watson & Olalde, 2019)

The mining legislation (South Africa 2002) prescribes collaborative planning to enable municipalities and mining companies (SLPs) to integrate their plans and address the negative effects of mining communities (Marais, 2013; Van der Watt & Marais, 2021). Weak municipalities grapple with the responsibilities introduced by decentralisation policies (normalisation) (Marais & Cloete, 2013; Louw & Marais, 2018). In the past, it was primarily the role of the national government to engage with the mining sector. Changes in policies have meant that local governments must now take on this responsibility, and also have to deal with closure.

Labour unions have successfully negotiated living-out allowances and created parity between Black and White mineworkers (Marais & De Lange, 2021). Marais and Lange (2021) observe that wage increases have contributed to informal settlement development. Many mineworkers prefer to live in informal housing, partly because of the unavailability of formal houses (Marais & Cloete, 2013). This settlement expansion in mining areas creates added responsibilities for municipalities, which have long-term consequences for downscaling and mine closures

(Marais & Cloete, 2013). Mining companies actively support the normalisation of mining towns as a closure strategy, because they can transfer houses to mineworkers and the responsibilities of maintaining properties to local municipalities. This arrangement relieves mining companies of their long-term liabilities (Louw & Marais, 2018; Marais & De Lange, 2021).

Marais and Cloete (2013) also believe that the White Paper on Mining (1998) was too ambitious, and municipalities with low capacity have failed to cope. The White Paper requires local government and mining companies to develop long-term dependencies, which disintegrate when they are faced with mine decline (Marais & De Lange, 2021). Cooperative governance between different government departments has also been a challenge. Marais and Cloete (2013) argue that the South African government should do more to assist mining towns and they draw attention to the need to help mining towns to “plan effectively and manage financial risks” (Marais & Cloete, 2013, p. 5). The weak systems for detecting and enforcing the regulations are a concern (Muswaka, 2017). Given that regulation is complex and capacity lacking, implementation is challenging at the national and local levels (Van Tonder et al., 2009; Van Druten & Bekker, 2017). Furthermore, the deterrents for noncompliance are weak and do not prevent violations, and even when violations are detected, appropriate sanctions are often not imposed (Muswaka, 2017).

4.3.4.3 Insufficient information for effective closure

Planning for mine closure requires access to relevant and reliable data to inform the numerous decisions that must be taken at the different stages of the closure project (Van Druten & Bekker, 2017). An Auditor-General report (2022, p. 4) on rehabilitating abandoned mines and mine openings reveals that the database used by the DMRE contained errors “resulting in data being inaccurate, outdated and incomplete”; furthermore, the data are not updated regularly.

Much information on the social aspects of closure is with mining companies and is not readily available to the public (Bainton & Holcombe, 2018b; Watson & Olalde, 2019). Mining companies are unwilling to be transparent about mine closure. Watson and Olalde (2019) found that mining companies often underestimate closure costs. In addition, the literature does not touch on critical social and political views, such as questioning “the underlying capitalist assumptions concerning resource extraction, land use and development” (Bainton & Holcombe, 2018b, p. 3).

In South Africa, inaccurate closure data are a problem (Van Druten & Bekker, 2017). Information gaps can contribute to the magnitude of the socioeconomic, political, cultural and institutional impacts that manifest at the end of the project life cycle (Bainton & Holcombe, 2018b). Furthermore, Van Tonder et al. (2009) report that mining companies have, in the past, destroyed records of closed mines, because they believed such information was no longer valuable. Additionally, little information is available on anticipated mine closures (Marais & De Lange, 2021), and there are hardly any documented local closure processes to inform good practice.

South Africa's many abandoned mines pose a major challenge. The Auditor-General's report (2009) identified a lack of accurate, complete, and relevant information as one of the problems the Department of Minerals and Energy experienced, making it challenging to develop appropriate rehabilitation strategies. A review of problems caused by abandoned mines in South Africa found that there is no agreement on "the definition of abandoned mines, their associated problems, regulatory issues, prioritisation of rehabilitation and rehabilitation cost estimation concerns" (Mhlongo & Amponsah-Dacosta, 2015, p. 279) (Mhlongo & Amponsah-Dacosta, 2015).

The MPRDA (South Africa, 2002) only provides guidelines for individual mine closures. South Africa developed the regional mine closure strategy in 2005. The intention was to guide closure plans from a regional perspective, given the cumulative socioeconomic and environmental impact several mines could have in a given area (Van Tonder et al., 2009). The regional mine closure strategy recognises the interconnectedness of mines in a region, such as the Witwatersrand Basin, and the burden left behind when they close; this burden is carried by the remaining mines. A National Mine Closure Strategy was developed in 2021 to guide the alignment of individual mine closure to regional mine closure plans to minimise the negative impacts of closure on affected communities (DMRE, 2021).

4.3.4.4 Myths, beliefs, and mistrust

Information is vital for mine closures, although it is usually unavailable. When information is shared, there are often questions about the level of transparency of the mining companies. Often, mine companies fail to manage community expectations and adequately involve communities in closure processes, which lowers trust levels and the ability of communities to effectively participate in closure planning (Stacey et al., 2010). Also notable is the lack of trust between management and employees of mines (Neingo & Tholana, 2016).

Jaja (2014, p. 10) argues that “man is a being that cannot bear to live with specific questions unanswered; that is why he sits down to formulate myths to make those questions answerable”. According to Jaja (2014), myths result from human imagination and are a direct expression of people’s perception of the world around them. Myths are in harmony with the consciousness shared by individuals within a society, and arise when there is a disconnection between the current situation and the desired behaviour or outcomes (Baklanov et al., 2018). A recent study, entitled “Women and Mining in the Free State Goldfields” (Sesele, 2019) describes a belief in the community that gold regenerates and grows back in 10 years. People who were interviewed believed there was enough gold underground and blamed the government for blocking the reopening of mines (Sesele, 2019). People firmly believe that mines can reopen in the future and will once again provide employment opportunities. Continued illegal mining activities (*zama zamas*), in a way, ‘validate’ the existence of sufficient gold underground. This belief prevents people from facing the reality of closure and planning accordingly. Sesele (2019) explains that people continue to seek job opportunities at mines, despite decline and closure, because they believe that mines will reopen. They also hope that exerting pressure on mining companies will lead to the youth being employed by the mines or get the mines to support community-based businesses. According to Sesele (2020), community expectations are likely to be entrenched in the historical experiences of people living in the area, particularly in the paternalistic role of mining companies as providers. As reflected in integrated development plans, these expectations resonate with municipalities’ persistent plans to grow the local economy.

4.3.4.5 Insufficient stakeholder engagement and communication

Mine closures require a long-term commitment from all key stakeholders and an opportunity for parties to contribute positively to the planning and implementation processes (Van Druten & Bekker, 2017). A lack of communication and cooperation between critical stakeholders is a significant cause of dysfunctionality in the mining sector (Perkins et al., 2020; Sesele, 2020). For a closure plan to be successful, the mining company and the community should negotiate the final land use after closure (Alberts et al., 2017; Bainton & Holcombe, 2018a; Macdonald, 2006). Often, there is miscommunication over mining companies’ plans, the community’s expectations, government strategies and expectations, fears and sources of anxiety for stakeholders, and the ability of mining companies to fulfil their commitments and deliver on communities’ expectations (Stacey et al., 2010). Ineffective stakeholder engagements are costly, hinder effective mine closure and may cause mistrust and conflict. Ackermann (2018)

recommends that mineworkers are involved in mine closure discussions, and that labour unions play a watchdog role to ensure compliance with the Mining Charter and the MPRDA.

4.4 INSTITUTIONS AND MINE CLOSURES

The NIE framework (Chapter 2) explained the importance of institutions in enabling exchanges (transactions), and stating that human interactions are characterised by uncertainties that result from bounded rationality (because of incomplete and asymmetrical information) and opportunism (Garrouste & Saussier, 2008). Thus, institutions and their enforcement are crucial to setting ground rules and influencing human behaviour. NIE has developed social analytical tools to explain complex issues, such as the existence and relevance of transaction costs, property rights and contractual relations. Chapter 2 showed that, much as institutions set the rules and influence human behaviour, society continuously changes them. Furthermore, changes in the institutional environment explain changes in human behaviour, and vice versa. Chapter 2 indicated that rules do not necessarily improve social efficiency or influence human behaviour, but reflect the interests of powerful groups in a society (North, 1993; Wegerich, 2001). To achieve their objectives, actors (game players) could invest resources in changing the game rules, or they could maintain the status quo. This section will frame mine closure within the NIE framework.

4.4.1 The rationale for institutions in mine closures

People find ways to change the natural environment to satisfy their needs. Human behaviour, left to its own devices, becomes uncertain and unpredictable and, therefore, needs to be controlled by society to minimise environmental and socioeconomic destruction and ensure sustainable development. Given the finite nature of mineral resources, mine closures are inevitable. Societies must develop robust regulatory frameworks (institutions) to protect the environment, provide order and discourage predatory practices (Linde et al., 2012). Institutions play a central role in mining operations and mine closures, which increases predictability and ultimately enables the cooperation of people and organisations. Institutions for mine closure help to minimise long-term environmental and social implications. Globally, the industry has noted that the sector's future depends on how well it manages mine closures (Australia, 2006; Macdonald, 2006).

4.4.2 Institutions and the complexities of mine closures

The complexities of mining operations are central to understanding mine closure processes. This is because complexities create uncertainties and determine what institutions are appropriate. Uncertainties are rooted in the actors, the actual exchanges in mine closure, and the systems to regulate mine closure.

4.4.2.1 *The actors (players)*

There are many actors in the mining sector, among which local communities, global, regional, national, and local authorities, civil society organisations and mining companies. The actors have diverse interests, values, and competing agendas (Lane & Kamp, 2013) as illustrated by Figure 4.1. Each mining community is unique in culture, political orientation, geographical location, environmental characteristics, and collective attitudes towards resource development (Linde et al., 2012; Roberts et al., 2000).

Mine closures create tensions in communities and require a strong institutional environment to safeguard the interests of individuals and the collective. When formal rules are weak, society may resort to informal rules and enforce them with social pressure and sanctions. Formal rules for mine closure refer to policies, while informal rules include community values and beliefs related to mine closure and the responsibilities of each stakeholder. Informal rules may sometimes be irrational, but certainly have a firm grip on people's beliefs and mindsets, and change very slowly (Eggertsson, 2013; North, 2005; Pereira & Lopes, 2018; Williamson, 2000). Like mine closure deliberations, informal rules cannot enforce complex exchanges in modern economies (Nee, 2003). According to Ferrini (2012), formal rules that work together with informal rules in a society can ensure that property rights are protected, policing is adequate, justice systems are in place, the police enforce laws, and bureaucratic processes are efficient. For example, strong institutions can ensure that closure planning starts from inception, communities are genuinely represented in the activities, the government sets appropriate regulations and enforces them, and mining companies deliver on their promises. Weak institutions (or the lack of enforcement) fail to protect people and the environment, giving rise to distressed communities.

a) The exchange (transaction)

A mining project is riddled with uncertainties about what is exchanged (property rights), and to whose benefit and cost. Property rights or the right to mine also include in addition, the

environmental right of local consent. Globally, mining companies are required to obtain SLOs from the host communities and FPIC in the case of indigenous communities (Wang et al., 2016). Owen and Kemp (2014) report that, currently, there is no universal definition of what constitutes consent. This implies that the way that different actors (stakeholders), communities, regions and countries understand consent may differ. Bounded rationality affects all decision-making processes concerning mine closure, as a critical part of the mine life cycle. Mining raises questions about the deal in terms of:

- i) What is being exchanged (for example, how much gold, diamond, coal, but also land and social aspects) in quantity, quality, price, and the duration of the mining project;
- ii) The actual closure cost, considering both the environmental and social costs and relevant transaction costs (as well as the interrelationship between the environmental and social costs);
- iii) The nature of contracts, verbal and written, including the SLO, FPIC, mining license, closure commitments entered into, as well as issues of accountability (how, to whom, and for what), enforcement, and power dynamics; and
- iv) How value is shared among the actors (who gets what, when and who represents who), that is, in the communities, government (the custodian for minerals, regulator and protector of the environment), and mining companies.

The above questions are difficult to answer conclusively because there is insufficient information. This situation makes exchanges complex, vulnerable to opportunistic behaviour and bound to create mistrust and conflict at mine closure.

b) The regulation

Global, national, and local factors influence the regulation that governs mine closures. Globally, the need to protect business interests has driven mining industry regulation. Regulation primarily emphasises reversing environmental damage. Furthermore, the absence of rules for governing social aspects of mine closure is problematic. The social aspects are poorly understood, underestimated, and inadequately documented. The mining industry has not yet embraced consultative and participatory processes to regulate and address the social aspects of mine closure. Lack of sufficient guidance on social aspects cascades down to the national level.

In most countries, nationally, governments hold all mineral rights on behalf of the public (Wang et al., 2016). Individual countries find it difficult to adopt global governance guidelines for their local contexts. Governments determine regulations, assign roles and responsibilities, and enforce closure regulations. Political decisions set the tone for the institutional environment in a country. Developing countries depend hugely on mining activities for employment, tax revenue, infrastructure development, innovation and technology, and philanthropic support for local businesses. Governments' knowledge of mining operations is limited, and they are often ill equipped to work with complex issues such as mine closures. Thus, to promote sustainable mining and ensure effective mine closures, political will is vital at this level. When state agencies cannot deliver on their mandates, or are biased or corrupted by power elements, economic exchange is adversely affected, and mistrust and uncertainties increase, which pushes up transaction costs.

Local actors are critical in determining mine closure strategies and shaping the post-mining future. Ideally, local governments implement regulations set by the national government and facilitate local planning and development processes. How well mine closure regulation is implemented locally directly affects the quality of people's lives and livelihoods. The impact on communities depends on how actively citizens protect their rights and influence policy-making processes (Broomes, 2013). When communities participate actively in all phases of mine closure and take ownership of its outcomes, it increases the credibility of the process, enables transparency, and draws in strategic partnerships to support the process and ensure the desired goals. Marais (2013) reports that local communities in South Africa are often poorly equipped to hold government and mining companies accountable for their actions. Local governments have capacity constraints (technical, financial and experience-based), which makes adherence to mine closure regulations difficult (Alberts et al., 2017; Broomes, 2013; Watson & Olalde, 2019). Local governments need financial and technical support from the national government.

Figure 4.4 illustrates how NIE analysis can help explain the complexities of mine closures as outlined above (actors, exchange, regulation), and lists aspects that should be regulated. It also shows how the shrinking cities framework can contribute to effective mine closures.

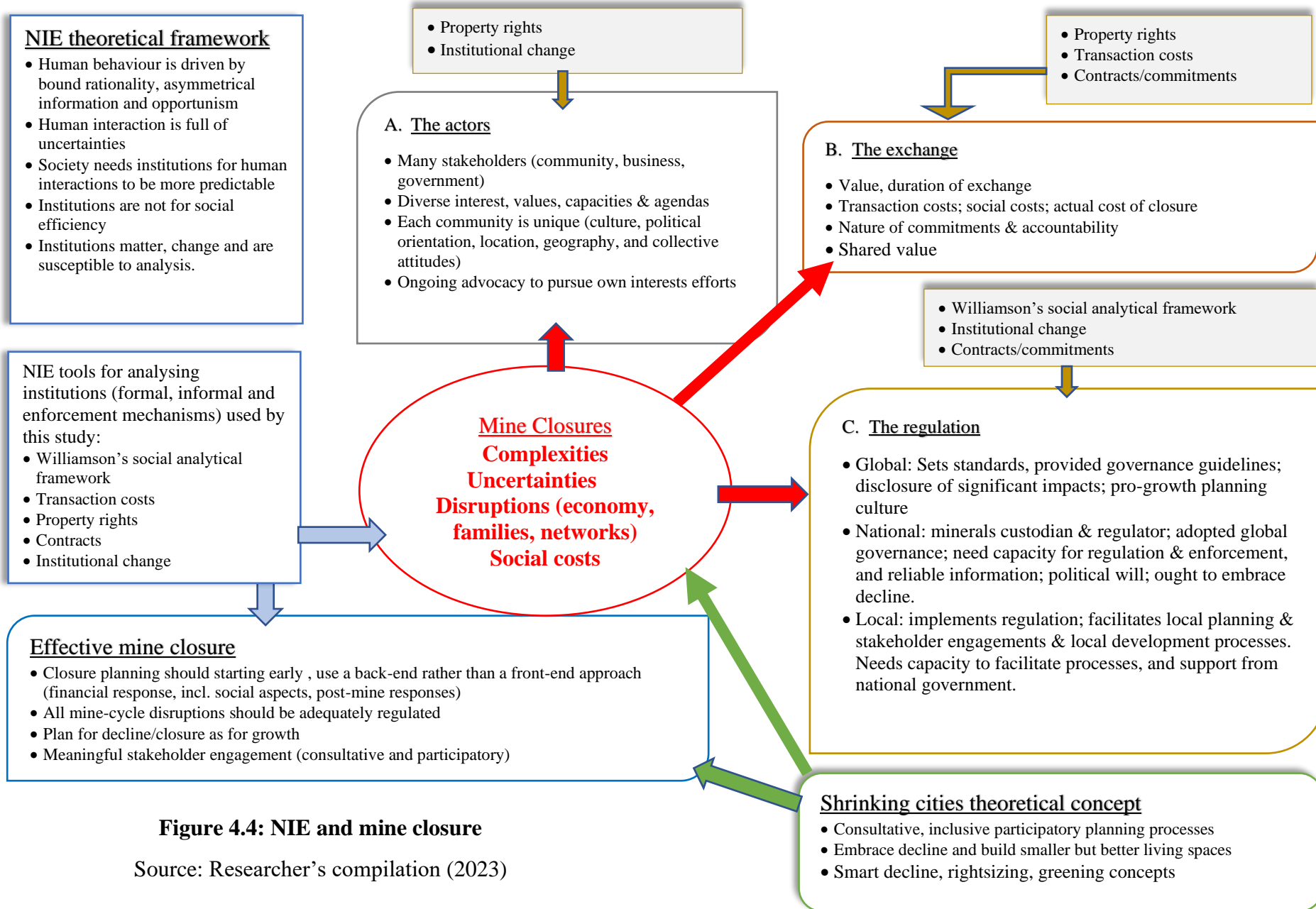


Figure 4.4: NIE and mine closure
 Source: Researcher's compilation (2023)

4.4.3 Institutions and planning for closure

Institutions should provide guidelines and ensure that mine closure processes are integrated in the mining project life cycle (Peck & Balkau, 2005). All events that disrupt mine life cycles, such as project abandonment, premature closures, care and maintenance and ownership changes (Lèbre et al., 2020), should be regulated. Scholars advocate for a back-end rather than a front-end approach, as described in Section 4.2.1. Also crucial is ring-fencing closure funds at the start of the mining project, and that the allocated resources are later managed according to the closure plan (Lèbre et al., 2020). Timely disclosure of important information and collecting relevant data on the rate at which mines are closing, the closure paths taken, and social liabilities caused by mine closure, should be mandatory for the mines. These facts inform the social costs of closure, which are essential to establish the actual cost of closure. Institutions should reduce complexities and uncertainties, especially when information about mine closure processes is not readily available or credible. Therefore, transaction costs should also be considered when the cost of closure is evaluated.

Considering the dependencies and complex networks created during mining operations, institutions should guide mine closures. The shrinking cities framework (Chapter 3) explains the benefits of planning for smaller but more efficient neighbourhoods and offering a good quality of life. Mine closure is a reality that must be anticipated and incorporated into government (national and local) planning processes.

4.4.4 Mine closure and institutional change

Formal and informal rules evolve organically, or change, because of a centralised structure such as the state. Mine closure is implemented with its rules, which actors must respond to, including changing the formal and informal rules. Cunningham-Sabot et al. (2013) point out that the impacts of shrinkage are the same everywhere, and include a reduced tax base and revenue, and an increase in expenditure on infrastructure and the built environment. In addition, shrinkage carries a stigma, which pushes people and businesses out and discourages new investments (see Chapter 3). While actors consider growth to be a rule, a goal to work towards and an expected trajectory in the economy, decline, in contrast, is often ignored and, therefore, not addressed adequately.

Chapter 2 showed that rules are ordered hierarchically and change in different ways, depending on the transaction costs of the change. In the case of political regulations, on the one end are constitutions, which are more costly to change, followed by laws, bylaws, and individual contracts on the other end (Greif & Kingston, 2011; North, 1990; Wegerich, 2001). Thus, regulation stipulated by a constitution is much more challenging to change than acts of parliament, or policies regulating mine closure or contracts signed by stakeholders. Governments are motivated by internal or external political considerations to alter mine closure regulation or enforcement institutions to influence change in a particular direction (North, 1993; Dacin et al., 2002). Drivers of change of mine closure regulation range from global to national or local groups that may actively engage the government through advocacy to pursue their interests. Weak institutions and enforcement mechanisms hurt relationships and economic exchanges.

According to NIE, stakeholders invest resources in ongoing engagements with the state to change game rules or to maintain the status quo to serve their own interests (North, 1993; Wegerich, 2001). Power imbalances among stakeholders in mine closures create mistrust and make collaborations difficult. Good institutions promote economic exchange, encourage trust, and influence powerful actors, including the state, to protect people's rights and private property (Shirley, 2005).

4.5 CONCLUSION

Mine closures involve many social actors with diverse interests, capacities and competing agendas. Hence, the social impacts of mine closure are diverse, complex and unique for each area. Complexities create uncertainties, make credible commitments difficult, and should be managed appropriately. Institutions are at the heart of mine closure and determine its effectiveness. The mining industry has put measures (rules) in place to minimise environmental degradation, optimise the use of natural resources, and promote sustainable development. It has also developed governance guidelines and tools to guide efforts by countries and mining companies to ensure effective mine closures. Mine-hosting communities should also have guidelines for mine closure if they are to play a meaningful role. A regulatory framework that considers the complexities and local circumstances is critical. The government plays a critical role in developing and enforcing effective mine closure regulations.

The reality of mine closures does not often feature in national and local development plans. Hence, policymakers pursuing pro-growth strategies often need to pay more attention to the

principles of sustainable mining. Like other developing countries, South Africa is grappling with promoting economic growth and ensuring effective mine closure. According to the shrinking cities concept (Chapter 3), pro-growth strategies are insufficient to address the impacts of mine decline and may even increase the negative consequences of the distress (Wiechmann & Pallagst, 2012). The concept emphasises the need to plan for decline using inclusive, participatory, bottom-up processes, to develop policies and programmes tailor-made to suit the circumstances of the affected area. National governments should formulate and implement appropriate rules, and create an institutional environment that promotes participatory approaches, to embrace decline and mine closure processes. However, governments in developing countries often need more political will, relevant data, and capacity to develop, implement, and enforce regulation that ensures effective mine closure.

When formal institutions are strong and effective, they can reduce transaction costs for political and economic exchanges, protect property rights, and facilitate credible commitments. Weak institutions discourage democratic practices, meaningful community participation, and transparent engagements, which are critical for effective mine closures. Consequently, trust between stakeholders suffers severely, which increases uncertainties, transaction costs and economic activity costs, and reduces collaboration. Many mining companies abandon their mines, and others avoid mine closure responsibilities.

According to NIE (Chapter 2), a strong state promotes participatory processes. It can engage and empower local communities to understand closure regulations, commitments, and plans and critically analyse the status quo, including questioning power structures and finding alternatives (Wegerich, 2001). In contrast, weak states prevent democratic processes, allow corruption, and deny communities opportunities to actively engage in mine closure processes. Strong institutions will only resist change when they are supported by robust, influential stakeholders, which directly affects the lives and livelihoods of affected communities and creates a downward spiral in the local economy (North, 1990).

Communities that are affected by mine closures go through a challenging socioeconomic transition, with the situation exacerbated by formal institutions that are ineffective, that allow corruption to infiltrate society and are unable to protect the rights of affected communities. The NIE analysis helps explain the cost of mine closure, which can be used in planning processes. The next chapter will examine the nature, extent, and consequences of mine closure in the West Rand.

CHAPTER 5: MINE DECLINE AND CLOSURE IN THE WEST RAND

5.1 INTRODUCTION

Chapter 2 introduced the central role of institutions in influencing human interaction, reducing uncertainties (because of incomplete information), and determining how economic actors organise access to resources. Uncertainties (social, economic, political, cultural) require developing regularised patterns of human interaction (North, 1990). While rules influence societal behaviour, they also change in character and power because of endogenous and exogenous factors (Coccia, 2018; Dacin et al., 2002). Chapter 3 discussed issues of urban decline. Shrinking cities is a complex process that creates uncertainties and reduces the tax base and the ability of affected cities to generate income and attract investments – the uncertainties associated with decline point to the need for new institutions. Unlike growth, which is viewed as a positive development, decline is seen as a negative. However, decline might have benefits and could be planned. Chapter 4 discussed the characteristics of mine closures. Mine closures are complex processes, and although all mining communities face similar closure challenges, each community's experience is unique. The literature shows mine closure as a major challenge and disruptor of resource towns in Africa, where infrastructure, employment and municipal revenue depend on mining operation (Matebesi, Marais, & Nel, 2024). In addition, mine closure is often ignored and not planned for. This chapter will examine the impacts of mine closures in the West Rand,⁷ and analyse the contextual issues and the changing economic structure over the past three decades.

Gold and uranium mining are the main operations in the West Rand (West Rand District Municipality, 2018). However, the mining sector has been declining since the early 1990s (Basson, 2014; Marais et al., 2022; MTS et al., 2018; Neingo & Tholana, 2016) and already-deep mining has become even deeper. However, the mining sector in the area has been extended multiple times by adopting new technologies (Langanki et al., 2014; West Rand District Municipality, 2018). For example, the extraction of gold and uranium from tailings dams has increased, turning these liabilities into assets (Winde & Stoch, 2010). Nevertheless, the decline

⁷ Like elsewhere in South Africa, municipal boundaries in Gauteng have changed several times post 1994, thereby affecting local governments' geography and administration. Where needed, reference is made to the consequences of these changes.

in mining has persisted, and is attributed to volatile gold prices (and the related to the Rand-US\$ exchange rate), a decline in the quality of gold deposits, increasing cost of production (labour and electricity costs) because of the need for ultra-deep level mining, and labour unrest (Langanki et al., 2014; Neingo & Tholana, 2016). Unreliable energy supply and illegal mining have also contributed to closures. The globalisation of the South African mining industry since the 1990s has also changed the nature of mining (Crankshaw, 2002). Globalisation means that most companies focus on core mining activities and little spending on peripheral or non-mining activities. In some cases, this has helped prolong mine life, but has had a detrimental effect on surrounding communities. Despite its steady decline, mining remains the leading economic sector and employer in the West Rand.

In this chapter, I will investigate the nature and scale of mine decline in the West Rand. The chapter will discuss the following social-economic consequences: effects on the local economy, unemployment, informal sector employment, informal settlements, crime levels, and municipal finances. I will also discuss demographic changes.

5.2 THE NATURE AND SCALE OF MINE CLOSURE IN THE WEST RAND

South African regulations on closure ranges from care and maintenance to abandonment. Full closure is rare. While care and maintenance is meant to be temporary closure, it is often used to avoid closure. In 2019, S&P Data (Global Insight, 2019) identified 29 mines in the West Rand of which 11 were in Rand West, 10 in Merafong and eight in Mogale City (see Figure 5.1, Table 5.1 and Table 5.2). I will discuss four elements of mine closure: inactivity, care and maintenance, mining dumps and ownership change.

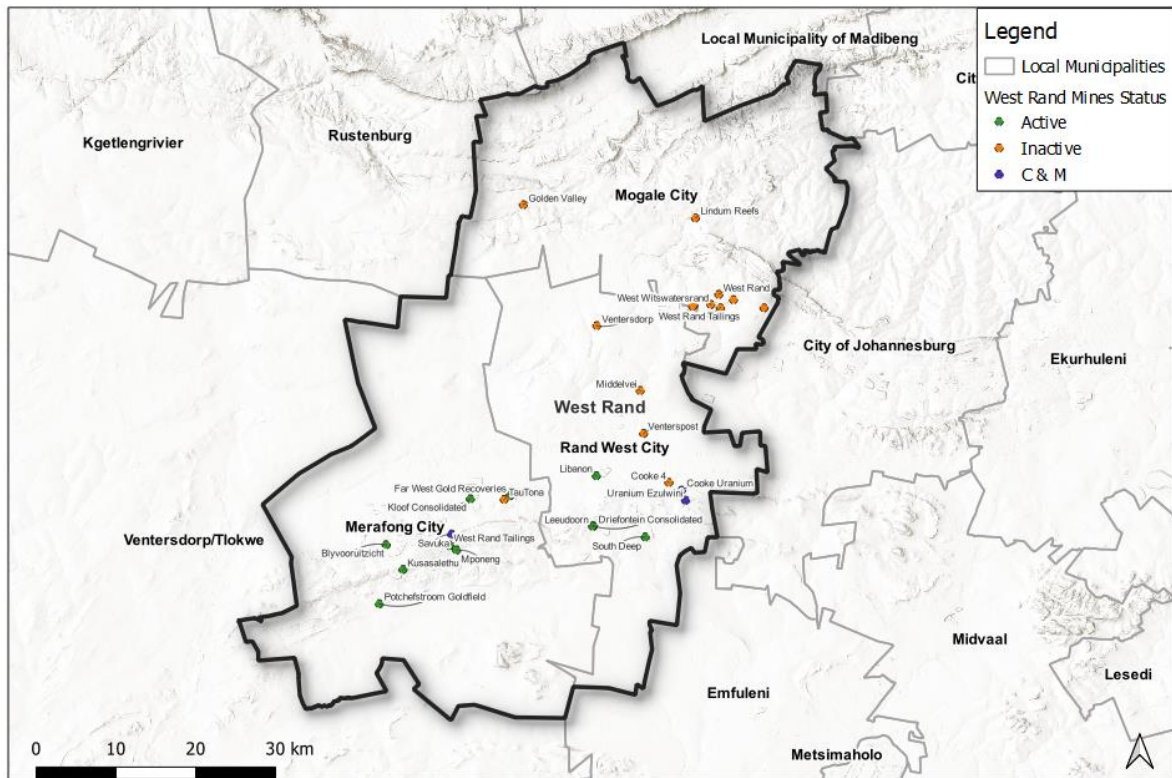


Figure 5.1: Mines in the West Rand, 2019

Source: Map drawn by Dr Herman Booysen, 2023

Table 5.1: Operational status of mines per local municipality, 2019

Municipality	Inactive mines		Care and maintenance		Active mines		Total	
	n	%	n	%	n	%	n	%
Rand West	5	35,7	2	66,7	4	33,3	11	37,9
Merafong	1	7,1	1	33,3	8	66,7	10	34,5
Mogale City	8	57,1	0	0,0	0	0,0	8	27,6
Total	14	100,0	3	100,0	12	100,0	29	100,0
% of mines	48,3		10,3		41,4		100,0	

Table 5.2: Mine activity by the nature of the mining, 2019

Operational status	Under-ground (only)		Tailings/dumps only		Open-pit only		Combinations		Not available		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Inactive	3	30,0	1	20,0	2	100,0	6	60,0	2	100,0	14	48,3
Care and Maintenance	2	20,0	0	0,0	0	0,0	1	10,0	0	0,0	3	10,3
Active mines	5	50,0	4	80,0	0	0,0	3	30,0	0	0,0	12	41,4
Total	10	100	5	100	2	100	10	100	2	100	29	100
% of mines	34,5		17,2		6,9		34,5		6,9		100,0	

Mining is concentrated in Rand West and Merafong, though most mines are inactive (see Figure 5.1). Only 12 (41%) of the mines are active, and 48% are inactive and 11% are in care and maintenance – the latter a status often viewed as an early indicator of closure (Lèbre et al., 2020). Most inactive mines are in Mogale City (57.1%), followed by Rand West City (35.7%). Merafong City, the largest of the three local municipalities, has the most active mines. Table 5.1 shows that only about 40% of the original mines on the database were still active in 2019. Prinsloo (2014, p. 6) states that the West Rand has been transformed into “a disturbing landscape cluttered with old mine dumps, toxic water that spurts from an old shaft and disgruntled community members”. In 2014, the three municipalities were among the distressed mining towns targeted for rejuvenation through a government and mining companies partnership.

Another indication of mine closure is the shift from underground, to mining the tailings or dumps. Only five of the 12 active mines are underground (Table 5.2), while seven operate above the surface. Historically, all the gold mines were underground. Mining the dumps prolongs mine life and indicates underground operations are no longer profitable. However, mining on the surface increases environmental problems. Although underground mines have a small surface footprint, they create a dangerous environment when these mines are improperly closed (Michaud, 2016).

Mining for gold is the most common type of mining in the West Rand, and is done by 72.4% of the mines overall. Gold mining is followed by mining for uranium (17.2%) and one mine each

for diamonds, platinum and nickel (see Figure 5.2). Yet, gold mines comprise 57.1% of the inactive mines and has been most affected by mine closure. Two of the three mines under care and maintenance are uranium mines.

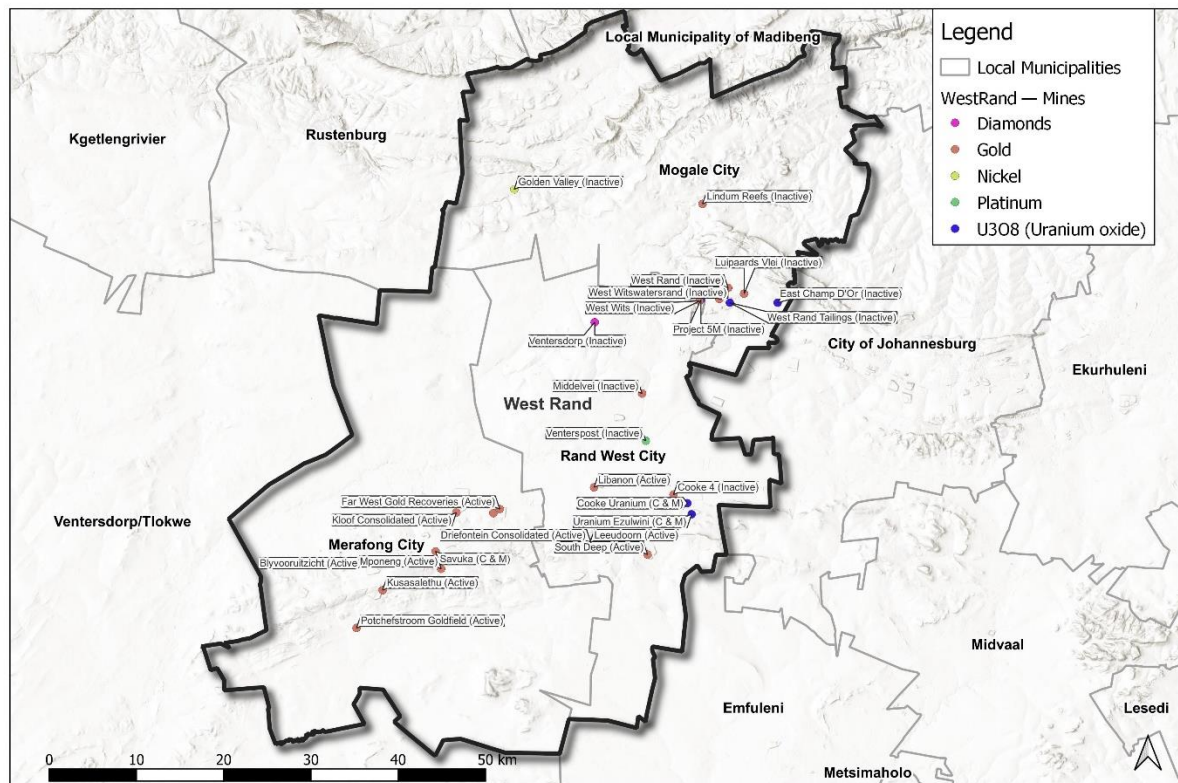


Figure 5. 5.2: Mines by type of mining on the West Rand, 2019

Source: Map drawn by Dr Herman Booysen, 2023

Five international mining companies own mines in the West Rand: Sibanye, Anglo Gold Ashanti, DRD Gold, and Blyvoor Gold (Pty) Ltd (Cole & Broadhurst, 2022; Kritzinger, 2017). Sibanye owned most mines (31%) in the West Rand, followed by Anglo Gold Ashanti (13.8%) and Harmony (3.4%). AngloGold Ashanti has since disinvested from South Africa to focus on higher returns, and sold the Mponeng mine (Merafong), the world’s deepest gold mine, to Harmony Gold Mining in 2020 (Mining Technology, 2020). Sibanye is the world’s third-largest producer of gold, with various projects in South Africa and operations in Rand West and Merafong. DRD Gold Limited mines from tailings of Far West Gold Recoveries in Merafong, while Blyvoor Gold Mine took over Blyvooruitzicht Gold Mine’s underground and tailings operations in Carletonville in 2016 (Cole & Broadhurst, 2022). The mine has since then been sequestered.

Table 5.3 shows that, between 2000 and 2019, the ownership of one mine in the Rand West changed more than five times, and six mines in Merafong changed ownership at least twice.

Table 5.3: Change of mine ownership between 2000 and 2019 per municipality

Municipality	One owner		Two owners		Three owners		4+ Owners		5+ Owners		No Owner		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Rand West	1	9,1	5	55,6	2	100,0	1	100,0	2	66,7	0	0,0	11	37,9
Merafong	6	54,5	3	33,3	0	0,0	0	0,0	1	33,3	0	0,0	10	34,5
Mogale City	4	36,4	1	11,1	0	0,0	0	0,0	0	0,0	3	100,0	8	27,6
Total	11	100,0	9	100,0	2	100,0	1	100,0	3	100,0	3	100,0	29	100,0
% of mines	37,9		31,0		6,9		3,4		10,3		10,3		100,0	

Note: n = ownership changes

Table 5.3 illustrates changes in mine ownership in the West Rand between 2000 and 2019. In the mining industry, change of ownership increases as mining companies choose to divest when mineral resources become exhausted and the “closure liability increases” (Vivoda et al., 2019, p. 5). Rapid ownership changes are, therefore, an indication of mine decline or closure. In the common practice of ‘pass the parcel’, mines are sold to smaller companies that are not adequately equipped to close the mines.

5.3 CONSEQUENCES OF MINE DECLINE AND CLOSURE IN THE WEST RAND

The West Rand is grappling with interrelated consequences of mine decline and closure. This section will examine the economic and demographic changes being experienced in the area.

5.3.1 Economic consequences

5.3.1.1 Declining gross value added

The West Rand has depended on mining since the 1930s. In 1996, 55.8% of the West Rand economy depended on mining; by 2010, this figure had declined to 40%; by 2018, it was nearly 30% (GP Treasury, 2019; West Rand District Municipality, 2021). Between 1996 and 2019, the local economy contracted by 28.7%, a drop attributed to the decline in mining activities estimated at 78.5. Table 5.4 and Figure 5.3 show changes in the gross value added (GVA) by sector since

1996. Improvements in the other sectors have not been enough to compensate for the steep decline in mining, hence, the enormous deterioration in the local economy. The sharp decline in GVA has contributed to the decline of the West Rand economy, business closures and job losses (Basson, 2014; West Rand District Municipality, 2022a).

The GVA changes at local municipal level are illustrated in Figure 5.4. Merafong has been most affected, followed by Rand West. Only Mogale managed, to some extent, to sustain its GVA, which has been attributed to the growing manufacturing sector, illustrated in the section.

Table 5.4: West Rand gross value add by sectors (1996–2019)

Year	Agriculture	Mining	Manufacturing	Electricity	Construction	Trade	Transport	Finance	Community services	Taxes less subsidies on products
1996	598 415	32 809 384	4 433 520	936 248	696 729	3 442 900	1 600 622	3 240 672	7 164 394	3 833 427
2001	514 517	30 199 393	4 966 486	764 772	676 552	3 959 293	2 262 879	4 153 783	7 025 426	4 328 504
2006	462 697	20 109 331	5 153 154	861 649	1 024 511	4 508 095	2 552 946	5 266 651	7 771 687	4 269 248
2011	482 465	11 872 613	4 986 934	878 521	1 329 077	4 813 901	2 759 419	6 036 045	8 430 511	4 021 092
2016	434 274	9 378 789	5 077 672	446 085	1 494 546	5 300 093	3 070 129	6 644 880	8 430 511	3 844 697
2019	437 715	7 069 853	5 002 284	330 088	1 390 802	5 219 096	3 079 176	6 875 587	8 537 769	3 938 831

Source: Global Insight (2019), IHS Markit Regional Explorer 2069 (2.6p)

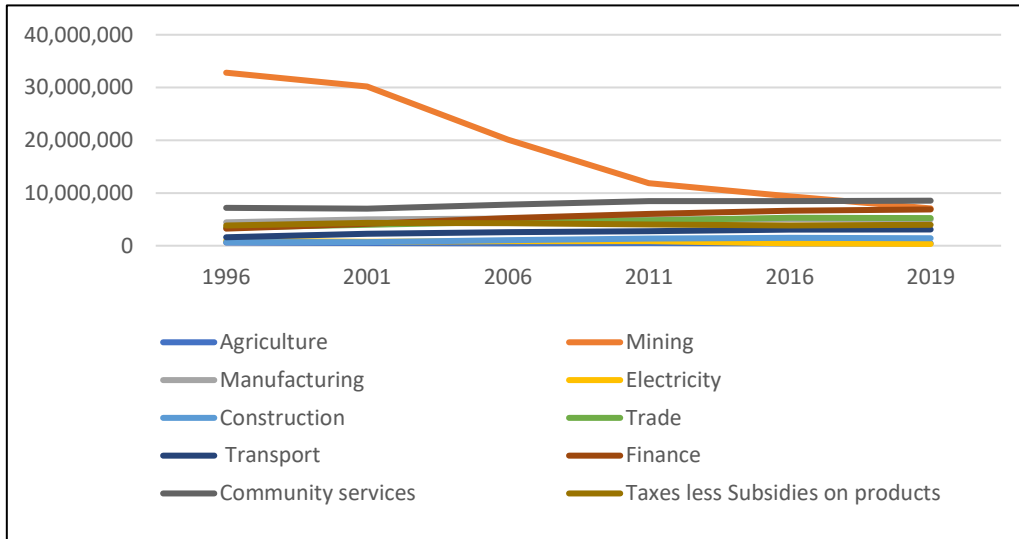


Figure 5.3: West Rand gross value added by sectors (1996–2019)

Source: Global Insight (2019), IHS Markit Regional eXplorer 2069 (2.6p)

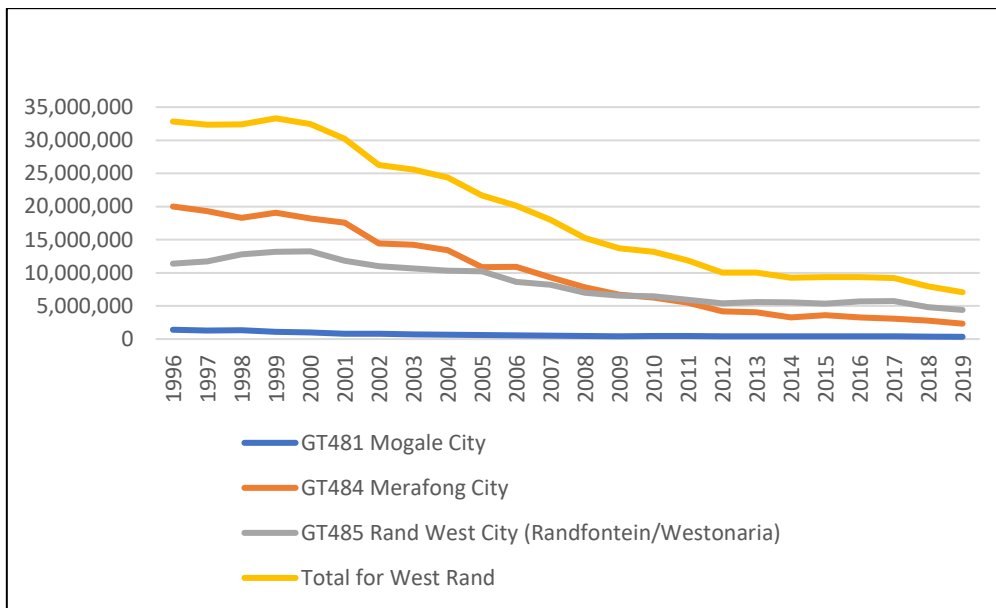


Figure 5.4: Gross value added by mining to the West Rand, per local municipality, 1996–2019

Source: Global Insight (2019), IHS Markit Regional eXplorer 2069 (2.6p)

5.3.1.2 Declining mine employment

Table 5.5 shows the number of people employed by the various sectors in the West Rand and the three local municipalities. Mining remains the predominant employer in Merafong and Rand West.

Table 5.5: Employment by sector in the municipalities of the West Rand, 2014–2021

Sector	Mogale city		Merafong City		Rand West		West Rand	
	2014	2021	2014	2021	2014	2021	2014	2021
Agriculture	4,323	5,232	476	625	846	1,147	5,645	7,004
Mining	13,603	11,724	27,377	16,320	39,344	33,999	80,324	62,043
Manufacturing	14,094	20,590	1,653	2,120	5,382	5,471	21,129	28,181
Electricity	122	289	38	31	25	34	185	354
Water	194	241	26	5	307	436	527	682
Construction	4,999	5,006	1,315	1,192	1,030	1,176	7,344	7,374
Wholesale	6,565	7,842	2,332	2,205	2,864	2,943	11,761	12,990
Transport	1,831	2,193	305	409	1,179	1,077	3,315	3,679
Accommodation	2,586	2,857	521	371	417	357	3,524	3,585
Information and communication	784	860	64	70	163	145	1,011	1,075
Financial	2,019	2,785	340	267	425	489	2,784	3,541
Real estate	397	738	71	63	118	92	586	893
Professional	1,752	2,386	372	314	516	351	2,640	3,051
Administration	11,582	9,239	1,559	609	1,389	1,186	14,530	11,034
Public admin	9,803	12,229	2,940	3,301	4,584	3,937	17,327	19,467
Education	2,070	3,242	340	495	926	822	3,336	4,559
Human health	4,011	1,948	263	603	1,151	971	5,425	3,522
Arts	625	1,433	47	103	146	50	818	1,586
Other services	3,903	5,583	334	223	433	599	4,670	6,405
Activities of households	28	50	157	104	15	15	200	169
Activities of external organisation	15	29	5	10	20	20	40	59
Total	85,306	96,496	40,535	29,440	61,280	55,317	187,121	181,253

Source: SARS (2022)

The total number of people employed decreased in Merafong and Rand West from 2014 to 2021. However, in Mogale City, manufacturing employs more people than mining does. During the same period, the contribution of mining to employment in Mogale decreased from 16% to 12.2%. Comparatively, Merafong’s employment in mining declined from 67.5% to 55,4%. By 2021, the percentage of people employed in the West Rand mining sector had declined from 43% to 34% since 2014. During the same period, the employment in manufacturing had increased from 11,3% to 15,6%, public administration from 9,3% to 10,7% and agriculture from 3% to 3.7%.

5.3.1.3 Declining growth in investments

Figure 5.6 shows that the growth rate of investments (average growth in gross fixed capital formation) in the West Rand has also been steadily declining, from about 8% in the 2011–2015 period to below zero in the 2016–2020 period. GP Treasury (2022) reported a 4% decline in the growth rate of investments in the West Rand during 2016–2020, which it attributed to the decline in mining activities. A decline in investments indicates uncertainty about future economic prospects in the local economy, and return on investments (Banerjee et al., 2015).

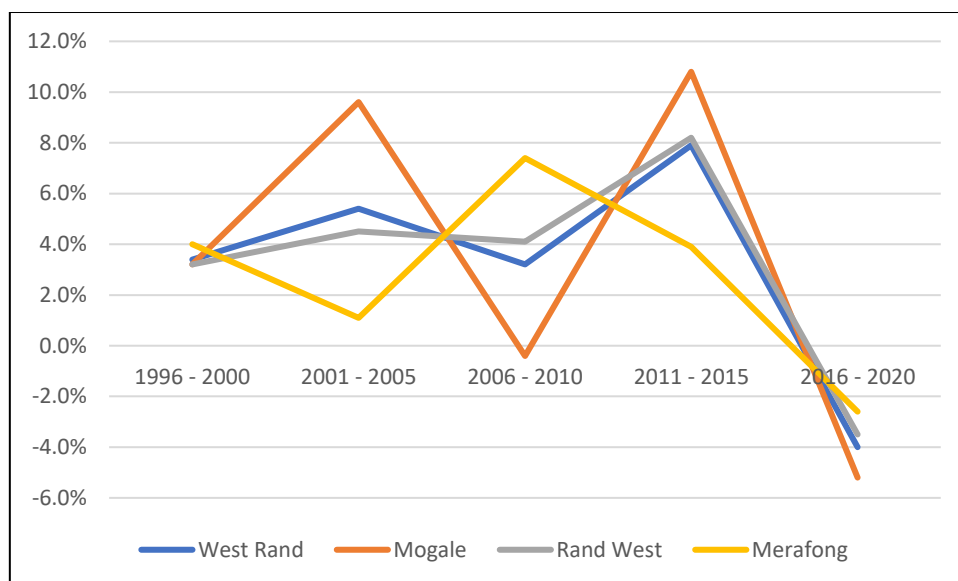


Figure 5.5: West Rand average rate of growth of investment (1996–2020)

Source: GP, Treasury (2022)

5.3.1.4 Increasing unemployment

Mine decline and closure have contributed to the increasing unemployment problem in the West Rand. It is estimated that unemployment in West Rand is increasing at an average rate of 8.53% per annum, which is much higher than the average rate of increase in the province of 4.4% (COGTA, 2021). From 1996 to 2019, Mogale City was most affected by unemployment, followed by Rand West City. The number of unemployed people (official definition) in the West Rand almost tripled, from 48 456 in 1996 to 138 750 in 2019 (Global Insight, 2019). Between 2011 and 2021, unemployment in the Rand West is reported to have increased from 26.1% to 68%, which is more than double the national average rate of about 34% (Grobler et al., 2023). During the same period (2011–2021), youth unemployment in the West Rand was almost double the official national unemployment level. The West Rand has a surplus of low-skilled workers who find getting work in the remaining sectors difficult. The shortage of employment opportunities causes high levels of social unrest, which is common in the district.

5.3.1.5 Increasing poverty levels

The areas have also experienced increased poverty levels (see Figure 5.8).

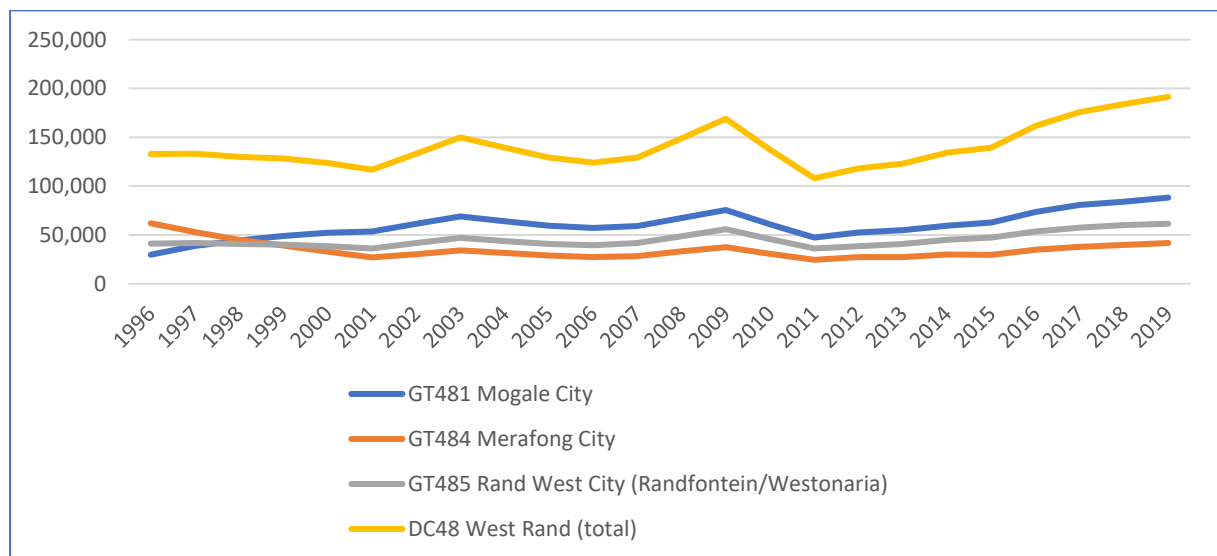


Figure 5.6: The number of people living below the food poverty line (StatsSA defined), 1996–2019

Source: Global Insight (2019), IHS Markit Regional eXplorer 2069 (2.6p)

Between 1996 and 2019, the number of people living below the lower poverty line (according to the definition of StatSA) in the West Rand District Municipality increased from 274 105 to

310 815 (14.4%), while those living below the upper poverty line increased from 396 280 to 444 207 (12.1%). Figure 5.6 shows the number of people living below the food poverty line steadily increasing from 108 031 in 2011 to 191 447 in 2019.

5.3.1.6 Rapidly growing informal sector

Over the past decades, an increase in job losses in West Rand has resulted in employment in the informal sector rising by 275%, with Mogale experiencing a 346% increase, as illustrated by Figure 5.7.

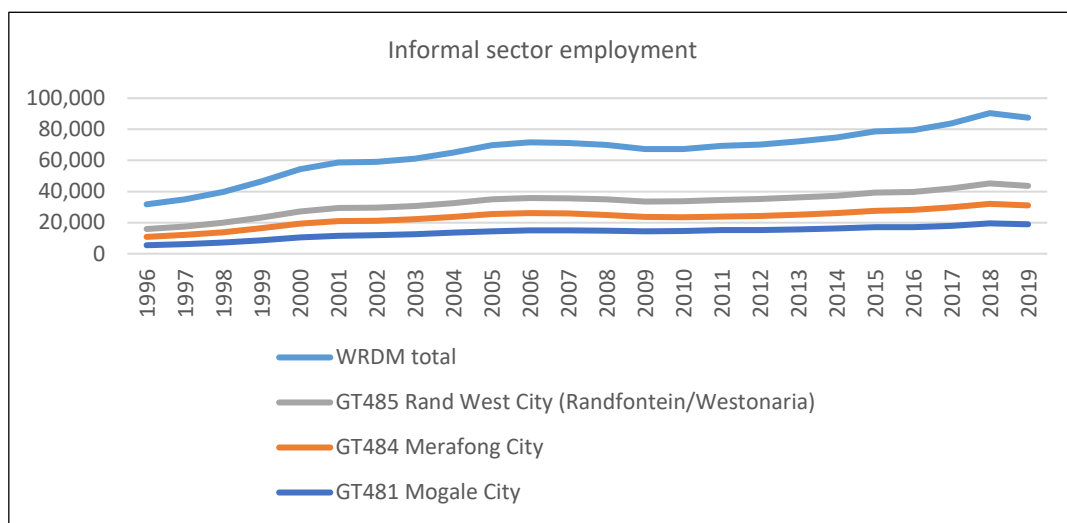


Figure 5.7: Informal sector employment in the West Rand

Source: Global Insight (2019) - IHS Markit Regional eXplorer 2069 (2.6p)

The Survey of Employers and Self-Employed (StatsSA, 2013) indicates that most people (70%) have started informal businesses to survive because they have failed to get alternative sources of income. The informal sector is a complex phenomenon that is often misunderstood, stigmatised as problematic, and perceived to play a minimal role in creating sustainable economic opportunities. However, recent studies that analysed the informal sector in South Africa reports that the sector makes a substantial contribution to the economy, that it is here to stay and bound to continue growing (Fourie, 2018).

5.3.2 Social consequences

5.3.2.1 Social unrest

Historically, communities in South Africa use protests to express their frustrations and bring about change in government practices (Lancaster & Mulaudzi, 2020). However, these protests

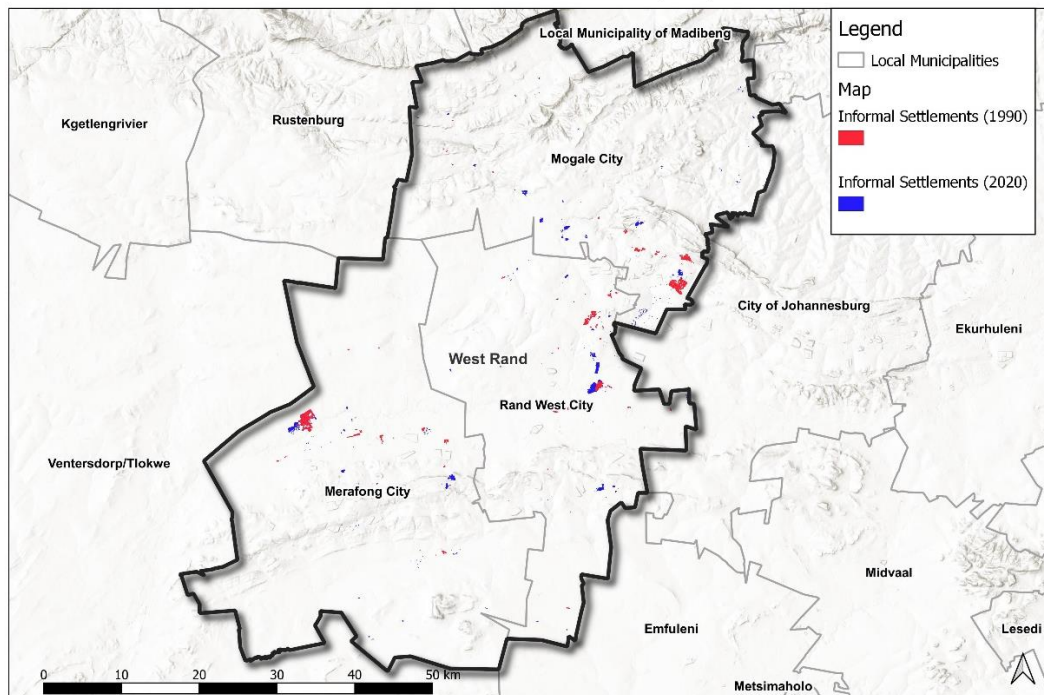
sometimes have negative consequences, such as destruction of public infrastructure. Often, actions taken by individuals or groups to express their dissatisfaction with a political system disrupt communities and risk economic growth and employment (Lancaster, 2018; Madubela, 2021; Runciman, et al., 2016). Although it is impossible to state that the West Rand is more prone to protest than areas where mining does not take place, protests are common there. Research has established a positive correlation between a region's level of dependence on natural resources and the level of violence in that region (Runciman et al., 2016). High unemployment, persistently inadequate service delivery and political issues have contributed to South Africa's social unrest. This is also the case in the West Rand.

Violent protests in the West Rand often relate to land and poor service delivery. The media reported on the torching of buildings in the Bekkersdal informal settlement in 2013 and Fochville in 2013, the burning of a clinic in 2013, a protest in the Zenzele informal settlement over lack of water and electricity, a clash with the police in Krugersdorp in 2018 and the Rietvallei riots in 2021, which were over land (Essa, 2014; Fakir, 2014; Seleka, 2021; Zulu, 2017).

Informal settlements are often hotspots for social unrest that is related to poor service delivery, unfulfilled promises, distrustful relationships and long-standing grievances or complaints about perceived unfairness (Visagie et al., 2021). Protests may also have hidden agendas. In a study of social unrest in the Bekkersdal informal settlement in Mogale City, Eeden and Khaba (2016) found that protests that appear to be about poor service delivery could actually be caused by politicians hoping for political gain. Similarly, politicians often use xenophobia to push their agendas (Rademeyer, 2022).

5.3.2.2 Land invasions and the growth of informal settlements

Increases in job losses, poverty and income insecurity have forced more people to reside in informal settlements (Cole & Broadhurst, 2022). Research has, however, claimed that urban sprawl in mining areas (Marais et al., 2020) occurs despite mine decline (Marais & De Lange, 2021). Informal settlements are the cheapest form of dwellings. Hence, informal settlements are mushrooming around active and inactive mines, thereby posing a challenge for local municipalities.



Note: *Informal Area 2020 = 1 257 ha; Informal area 1990 = 476 ha

Figure 5.8: Growth of informal settlements in the West Rand (1990–2020)

Source: Map drawn by Dr Herman Booysen, 2023

Figure 5.8 illustrates the growth of informal settlements between 1990 and 2020. In the West Rand, the area occupied by informal settlements more than doubled, from 476 hectares in 1990 to 1 257 hectares in 2020 (Figure 5.8). Land invasions have also increased, with groups of people resorting to grabbing land and erecting informal houses. In some cases, this takes place on mine land. For example, in January 2014, more than 600 Bekkersdal residents invaded vacant land of Rand Uranium (a gold mining company) near the township (Drum Digital, 2014; Dlamini, 2014; Mathebula, 2014). Residents expressed their frustrations, and attributed their actions to the poor and slow pace of service delivery (Mathebula, 2014). Rand Uranium and Rand West applied for an interdict to prevent the illegal occupation. The municipality cited a lack of funds for building houses, as it had not been budgeted for, but also noted that the occupied land was prone to sinkholes and had been rezoned for agricultural purposes (Drum Digital, 2014). Table 5.6 provides an overview of the types of houses in Gauteng in 2016.

Table 5.6: Distribution of houses by type of main dwelling and municipalities, 2016

District/Local municipality	Formal dwelling		Traditional dwelling		Informal dwelling		Other	
	n	%	n	%	n	%	n	%
Sedibeng District	286 855	86,7	1 103	0,3	40 782	12,3	2 069	0,6
Midvaal	31 546	82,9	51	0,1	6 303	16,6	147	0,4
Emfuleni	220 630	87,0	614	0,2	31 091	12,3	1 134	0,4
Lesedi	34 679	88,3	438	0,1	3 389	8,6	788	2,0
West Rand District	252 390	76,3	1 205	0,4	74 533	22,5	2 444	0,7
Mogale City	111 815	76,0	165	0,1	33 998	23,1	1 176	0,8
Merafong City	64 903	81,3	791	1,0	13 759	17,2	381	0,5
Rand West City	75 672	73,1	249	0,2	26 776	25,8	887	0,9
Ekurhuleni Metro	1 044 321	80,4	2 248	0,2	242 499	18,7	10 334	0,8
City of Johannesburg	1 506 197	81,3	2 628	0,1	333 570	18,0	10 932	0,6
City of Tshwane	939 307	82,7	3 580	0,3	186 862	16,4	6 350	0,6
Gauteng province	4 029 069	81,4	10 763	0,2	878 246	17,7	32 129	0,6

Source: StatsSA (2016)

Table 5.6 shows that 22.5% of the households in the West Rand live in informal dwellings, compared to 12.3% in Sedibeng District. The provincial average of people residing in informal dwellings is 17.7%, while, in Rand West City, it is as high as 25.8% (StatsSA, 2016). In 2017, the National Department of Human Settlements (2017) recorded 116 informal settlements in West Rand, which is high compared to Sedibeng (33) and the metros, Tswane (115) and Ekurhuleni (123). Some West Rand informal settlements have grown substantially, including Bekkersdal (established in 1945) with 12 745 households and Khutsong (established in 1958) with 10 773 households, and Zenzele (established in 1997) with 5 010 households. Service delivery is poor in most informal settlements, and it is often politicised (Van Eeden & Khaba, 2016).

5.3.2.3 Devastation to the environment and human health

While gold has contributed significantly to economic activities, the devastation its mining has caused to the environment and human health has been acute (Lusilao-Makiese et al., 2013). Informal dwellings built on or near slime dams have exposed people to radon emissions radiation, dust and flood risks (Winde & Stoch, 2010). Although mining companies must

comply with South Africa's mine closure regulations, this is not always done, and mechanisms to enforce the law are weak. Mine sites are abandoned when they are deemed unprofitable, or companies apply for business rescue or liquidation to avoid rehabilitation costs. Local communities suffer the consequences, and the government is liable for protecting people and the environment (Auditor-General, 2009; Muswaka, 2017; Perkins et al., 2020).

In the case of Mintails South Africa (Pty), the Parliamentary Portfolio Committee investigated its mining operations near Krugersdorp in Mogale City, and found that Mintails was responsible for polluting the environment (Olalde & Matikinca, 2018). The Parliamentary Portfolio Committee established that Mintails had mined outside its permits and had ignored its SLP commitments. In addition, the investigation uncovered several illegal activities, and lax oversight by the company. The cost of rehabilitation was estimated at R330 million, but only R25.6 million was available (Olalde, 2018). The company was put under business rescue, which failed and, in 2015, it applied for liquidation, thereby reducing any hope for effective environmental rehabilitation.

Abandoned mines have also been associated with the formation of sinkhole hazards. Sinkholes are likely to occur in dolomitic areas, especially where there is large-scale dewatering and when proper rehabilitation is not done at closure (Michaud, 2016; Winde & Stoch, 2010). Compared to other areas in South Africa, the West Rand has experienced the worst damage from sinkholes, which continue to pose a significant threat (Kritzinger, 2017; Winde & Stoch, 2010). Kritzinger (2017) reports that nearly half the 2 500 sinkholes identified in South Africa were found in the West Rand. For decades, the disruption caused by mine decline and closures has caused an uproar among affected communities, with calls for the law to hold those responsible for the damage caused (Saturday Star, 2018). Most of the abandoned mines in the West Rand used underground methods, making them more hazardous than the abandoned open-pit mines (Michaud, 2016). Winde and Stoch (2010) highlight the interconnectedness of mines in the West Rand and recommend regional integration of mine closure strategies.

5.3.2.4 Crime and illegal mining

Mine closure has been associated with crime and social disruption (Marais et al., 2022). Marais et al. (2022) found much higher crime levels where mining had declined than in other similar-sized or larger cities. The study included Rand West and Merafong City under the mining

decline category, and they report that these cities had the highest crime rates for contact and sexual offences. Figure 5.9 illustrates the murder rates between 2009 and 2018.

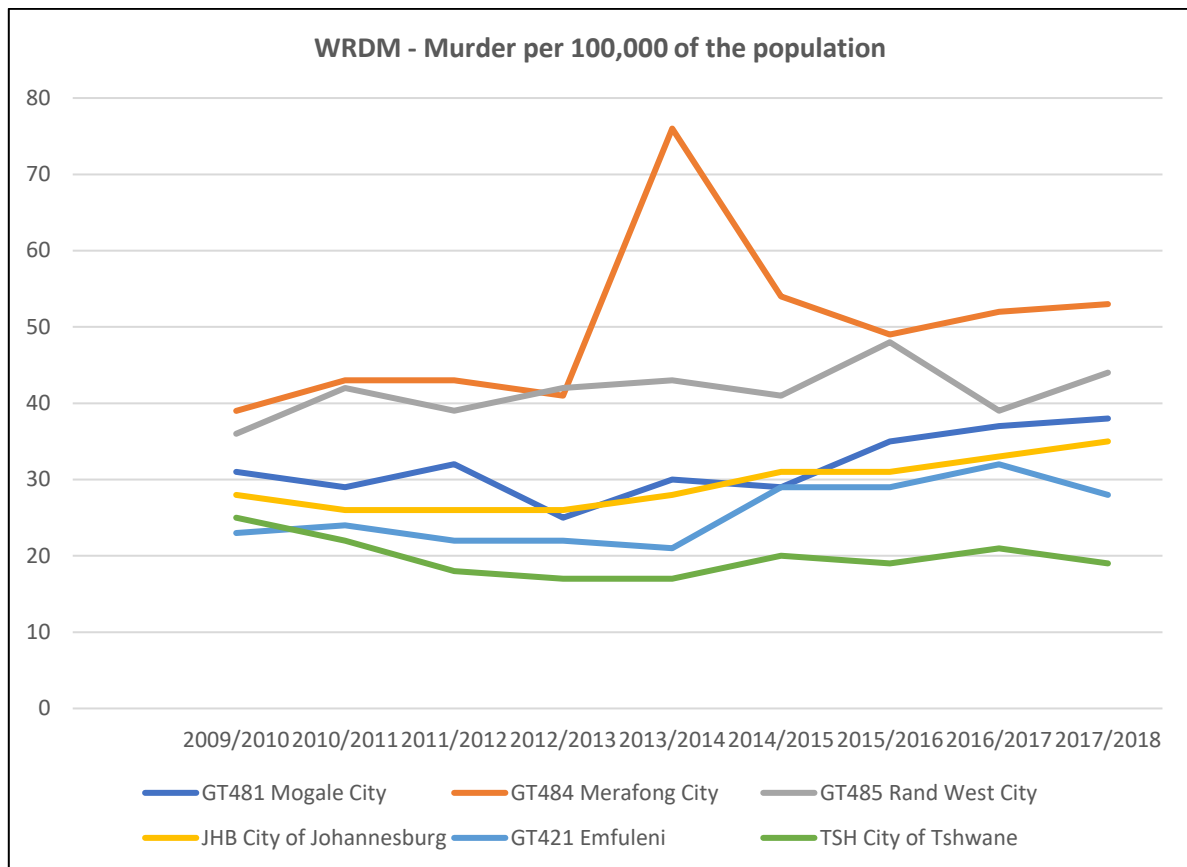


Figure 5.9: Murder rates in the West Rand (2009–2018)

Source: Marais et al. (2022)

Figure 5.9 shows that murder rates were exceptionally high in Merafong City and Rand West City, compared to Mogale City, which has a growing manufacturing sector, and the three metros in the province.

One of the contributing reasons for high crime rates is the postapartheid focus on creating stability through housing (Marais, 2023). Marais et al. (2022) found that this trajectory has stimulated the fast growth of urban settlements. In the case of mine decline and closure, the people who are affected often fail to secure alternative employment. This inability adversely affects their livelihoods and increases crime. Secondly, government strategies that focus on mining growth and ignores the looming mine closures means that key role players are unprepared when the mining operations decline or cease and cannot deal with the emerging consequences. Thirdly, even when mine decline and closure are included in local strategic

planning processes, the emphasis is on addressing environmental impacts, and little attention is paid to the social impacts. As a potential consequence of mine decline and closure, combating crime does not feature in strategic plans. Another reason for high crime levels is the emergence of illegal mining activities when mines are abandoned or closed, thereby exacerbating crime (Marais et al., 2022). Lastly, the study by Marais et al. reports on the inefficiency of the police, which fails to deter crime and enforce law and order during a time of decline, as public finances dwindle and service delivery deteriorates.

The deterioration of service delivery also contributes to rising crime when, for example, streetlights stop working, which it adversely affects safety at night, especially for girls and women. Poor road conditions and lack of house unit numbers, especially in informal settlements, make policing difficult. Weak law enforcement exacerbates the problem. Gender-based violence and alcohol abuse are common characteristics of mining communities, and they worsen with mine closure (Sesele et al., 2021b). Illegal mining is a critical concern for West Rand (Kritzinger, 2017).

Although illegal mining is rampant across sub-Saharan Africa, it is more prevalent in South Africa (Ryan, 2022). Scholars report that illegal mining has been a growing problem in the West Rand, and they highlight it as a significant contributor to the high murder rate (Phala et al., 2017; Rademeyer, 2022). *Zama zamas* used to operate mostly covertly, by working on open mining pits but also gaining access to active shafts by breaching mining companies' security. However, their activities have rapidly increased during the past decade, and now *zama zamas* operate brazenly in the West Rand. With the closure of mines, illegal mining has increased to unprecedented levels; it has increased foot and vehicle traffic, and heavily armed syndicates using sophisticated equipment move around openly in the communities. They are engaged in illegal mining and violent and organised crime, and they attack people and businesses (Louw, 2022).

Attempts to improve stakeholder collaboration led to the establishment of the West Rand District Mining Forum (Citizen, 2019). Mainstream media regularly reports on efforts by the police, in partnership with mining companies and private security companies, to make arrests and seize their equipment, including torches, hammers, spades, bush cutters, explosives, generators and bags of raw gold ore (Citizen, 2019; Creamer, 2019; Pretorius, 2021). Police raids, for example, in July 2022 in Westonaria, where 800 suspects were arrested, are among the actions taken to stop illegal mining and other crimes (ENCA, 2022). In August 2022, about

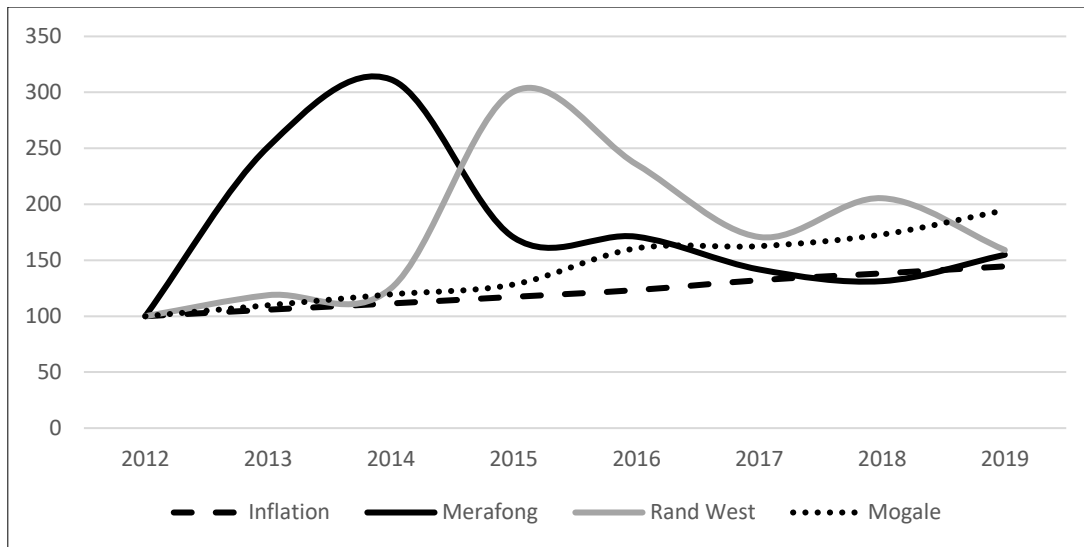
100 suspected illegal miners were arrested for the alleged gang rape and robbery of eight women who were filming a video at an unused mine dump in West Village in Mogale City (Rademeyer, 2022). Affected communities were up in arms, and demanded that illegal mining be stopped. They blamed police for the increase in crime, for reluctance to protect communities, and for being incompetent and corrupt (Gumede, 2022). Unfortunately, all these efforts to arrest *zama zamas* are short-term interventions that do not get to the core of the problem communities face.

The nationwide South African Human Rights Commission hearings highlighted the complexity of illegal mining. Findings showed five hierarchical and interconnected levels in the illegal mining value chain (SAHRC, 2013). The higher levels support those below and, at the bottom end of the chain are the *zama zamas* who do the actual digging and may operate individually or in groups. At higher levels are syndicates, exporters and international operators who sustain the illicit trade. Thus, the complexity of illegal mining operations is a critical issue when addressing the problem.

Communities call for government to show the political will and determination to tackle the problem and end corruption, which has rendered mining regulation and policing ineffective. The Minerals Council has suggested establishing a specialised, well-resourced mining task force, and it acknowledges that illegal mining is a serious criminal activity in the legislative framework. Furthermore, it suggests improving crime intelligence, finding solutions for the over 6 000 abandoned mines in South Africa, and expediting the inclusion of artisanal and small-scale miners in the formal economy (Minerals Council, 2022).

5.3.3 Consequences for municipal finances

Over the years, the West Rand had become overly dependent on revenue from mines, which was unsustainable. Mine decline and closure reduced the municipal tax base. The West Rand faces dire financial resource constraints and struggles to pay creditors and salaries (West Rand District Municipality, 2022a). Like other South African municipalities, the West Rand has been increasingly challenged to rely on its own revenue sources, as transfers from the national government continue to fall (StatsSA, 2021; Zwane, 2021). Own revenue sources include property rates and municipal charges for electricity, water, sanitation and refuse removal, traffic fines, licences and permits.

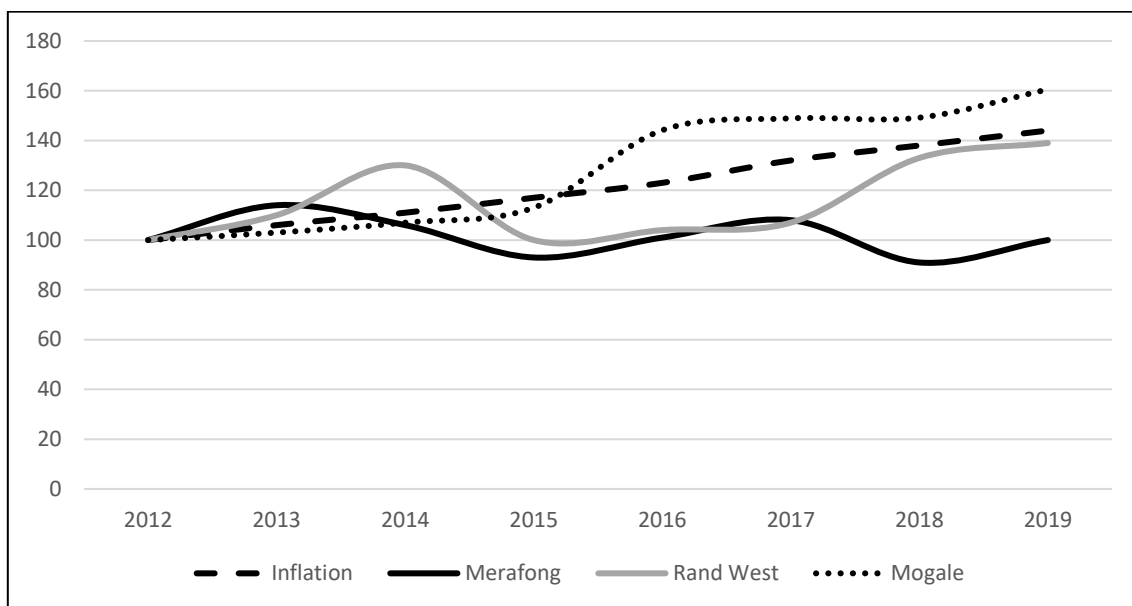


Note: 2012 figures expressed as 100%

Figure 5.10: Changes in property rates collected per local municipality compared to national inflation, 2012–2019

Source: Marais et al. (2022)

Figure 5.10 shows changes in the property rates collected by local municipalities. The property rates collected by Merafong City and Rand West City municipalities, which are both heavily dependent on mining, have declined significantly during the past decade. The decline in revenue collected is associated with businesses closing and the falling growth rates of investments in local economies. In contrast, Mogale City’s revenue from property has managed to increase consistently at a rate higher than the rising inflation.



Note: 2012 figures expressed as 100%

Figure 5.11: Changes in electricity charges collected per local municipality compared to national inflation, 2012–2019 (2012 figures expressed as 100)

Source: Marais et al. (2022)

Figure 5.11 shows changes in the revenue from electricity charges. Merafong and Rand West remained below the national inflation rate, making the situation financially unviable. This situation works against the municipalities' efforts to increase their self-generated revenue. Mogale City's revenue from electricity charges remained above the national inflation rate. Another factor for consideration is South Africa's rising electricity prices, which reduce the electricity demand and negatively affect consumers, particularly those in poor households. Poor consumers are worst affected when producers pass on the increased cost of production to consumers. A drop in electricity consumption translates into fewer economic activities, impedes job creation, leads to less revenue for the municipality and negatively affects the potential for local economic growth (Altman et al., 2011).

Table 5.7: Aged creditors and irregular expenditures as % of total expenditure and debtors as a % of income (average 2017–2019) per local municipality

Expenditure	Merafong City	Rand West City	Mogale City
Irregular expenditure as % of total expenditure (average 2017–2019)	15.8	11.1	5.8
Aged creditors as % of total expenditure (average 2017–2019)	46.2	46.6	20.2
Debtors as % of income (average 2017–2019)	68.3	35.2	53.9

Source: Marais et al. (2022)

Table 5.7 shows the aged creditors and irregular expenditures as percentages of total expenditure and debtors as a percentage of income (average 2017–2019) per local municipality. Irregular expenditure, which refers to expenses in violation of any applicable municipal finance legislation, constitutes a big proportion of the total expenditure in Merafong (15.8%), compared to Rand West (11.1%), and is triple the amount of Mogale (5.8%), as indicated in Table 5.7. Irregular and wasteful expenditures have persisted in the West Rand, and has risen rapidly from 4.8% in 2016–2017 to 18.4% in 2017–2018 and 23.3% in 2018–2019 (National Treasury, 2020). These unlawful expenditures are attributed to poor expenditure controls, and they necessitate adequate enforcement of legal frameworks.

Table 5.7 also shows that, during the period 2017–2019, the amount of money owed by Merafong to its creditors was, on average, equivalent to 46.2% of its total expenditure, almost equal to what Rand West owed (46.6%) and more than double what was owed by Mogale (20.2%). Regarding debtors, Merafong and Mogale were owed 68.3% and 53.9%, respectively, both large percentages, which negatively affects cash flow and is not beneficial for the financial health of the municipalities.

West Rand mainly provides emergency fire rescue and ambulance services, disaster management, and district health service coordination (Auditor-General, 2019). However, contributions from these services to the West Rand total revenue of R303 million (2018/19) remain very low, with the district recording only R1 million from emergency services and none from the coordination of health services.

The 2018/2019 Auditor-General's report shows that local municipalities in the West Rand contributed only R13 million of revenue to the district. The balance of the district's budget was funded mainly by grants equivalent to R273 million (Auditor-General, 2019), including a R163 million regional service levy replacement grant to supplement revenue, considering that the district does not collect its revenue from services, the fire brigade service grant of R57 million, the equitable share of R35 million, and other small grants. The Auditor-General (2019) reports, furthermore, that R190 million (63% of West Rand's total revenue) was used to pay salaries, which is very high. According to the National Treasury (2020), only 10% of the West Rand total income was locally generated during the 2018/2019 financial year. This contribution to total revenue is low compared to the 25.2% generated by Sedibeng, the other district municipality in the Gauteng province.

Mine closures severely impact local government finances, and affects its ability to provide services to its residents. The decline in municipal finances has a ripple effect on the local economy. In the West Rand, the decline in mining has contributed to high unemployment and poverty. In addition to the shrinking tax base, the decline means many residents cannot pay for basic services. Thus, the municipality cannot provide services and economic opportunities, which leads to high unemployment rates and poverty, and creates poor living standards that lead some people to resorting to illegal mining to survive.

5.4 CHANGING DEMOGRAPHIC TRENDS

The decline of mining activities in the West Rand has played a central role in the changing demographics in the area.

5.4.1 Decrease in the rate of population growth

Table 5.8 compares the population growth of the West Rand with other districts and metropolitan areas in Gauteng.

Table 5.8: Population distribution and growth: 1996, 2001, 2011 and 2016

Province/District/ Local municipality	Total population		Annual growth rate 1996- 2001 %	Total population		Annual growth rate 2011–2016 %
	1996 Census	2001 Census		2011 Census	2016 Communi- city Survey	
Sedibeng District	716 844	794 088	1.03	916 484	957 528	0.88
Midvaal	53 353	64 271	1.88	95 301	111 612	3.21
Emfuleni	597 285	657 949	0.97	721 663	733 445	0.32
Lesedi	66 206	71 868	0.82	99 520	112 472	2.48
West Rand District	659 475	744,627	1.22	820 995	838 594	0.43
Mogale City	226 446	295 505	2.70	362 422	383 864	1.16
Merafong City	209 727	210 481	0.04	197 520	188 843	-0.89
Rand West City*	223 303	238 641	0.67	261 053	265 887	0.37
Ekurhuleni Metro	2 026 978	2 481 762	1.03	3 178 470	3 379 104	1.23
City of Johannesburg	2 638 471	3 226 055	2.03	4 434 827	4 949 347	2.22
City of Tshwane	1 792 357	2 142 322	1.80	2 921 488	3 275 152	2.31
Gauteng province	7 834 125	9 388 854	1.83	12 272 263	13 399 724	1.77

Note: *Rand West City local municipality was formed in 2016 through the amalgamation of Randfontein and Westonaria local municipalities.

Sources: StatSA (2011; 2016)

Table 5.8 shows that, between 2011 and 2016, West Rand's annual growth rate was 0.43%, which was much lower than its annual growth rate for the period 1996–2001, and of Sedibeng (0.88%), the other district in the province, and far below the provincial growth rate of 1.77% (StatsSA, 2016). In 2016, the West Rand population was estimated at 838 594, about 6.3% of Gauteng province's population, down from 8.4% in 1996. During 1996–2001, Merafong City, the local municipality with the largest number of closed mines, had an annual growth rate of 0.04%, which declined further to a negative rate of –0.89% during 2011–2016, thereby indicating significant out-migration. Worth noting in the Sedibeng district during the same period are Midvaal and Lesedi local municipalities, which experienced record-high annual growth rates of 3.21% and 2.48%, respectively, which could be attributed to the movement of people within the province, mainly from West Rand. Although the population growth rate has

declined, informal settlements have expanded, which could be attributed to the increasing levels of poverty and livelihood insecurity (see Section 5.3.2.2).

5.4.2 Increased in migrant labour that previously depended on mining

The South African mining industry, particularly gold and platinum mines, has relied heavily on migrant labour for over a century. Locally led recruiters, such as the Employment Bureau of Africa, recruited labour from Southern Africa (Cole & Broadhurst, 2022; Lucas, 1985). Bilateral agreements were signed between governments (Winde & Stoch, 2010). Mining became a magnet for unskilled and semi-skilled labour from the Southern African Development Community (SADC) region (Harington et al., 2004; Njini, 2020). Between 2001 and 2011, the proportion of foreign migrants from the SADC region to Gauteng increased rapidly, from 64.5% to 87.5%, respectively during this period (Ngobeni, 2014).

The 2016 Community Survey shows that, in the West Rand, 91.6% of the people born outside South Africa were from SADC countries – far higher than those born in the rest of Africa (2.7%) (Stats SA, 2016). The percentage of people born in SADC countries and drawn to the West Rand (91.6%) was also much higher than in Sedibeng (79%), and the provincial average of 81.7%. During 2011–2017, Merafong City saw 23 545 people moving away, mainly to other areas of Gauteng, and only 662 people moved into the local municipality (Merafong City Local Municipality, 2021). Given the decline in mining activities and job losses, and considering the high unemployment levels throughout the region, many migrant labourers, mostly unskilled or low-skilled, remain in the West Rand, possibly because they have nowhere else to go.

5.4.3 Decrease in the sex ratio

The West Rand has, over the decades, had an above-average ratio of men to women. Figure 5.15 illustrates sex ratios for 1996, 2001, 2011 and 2011. Mine decline has led to a decline in the percentage of men, as illustrated in Figure 5.12.

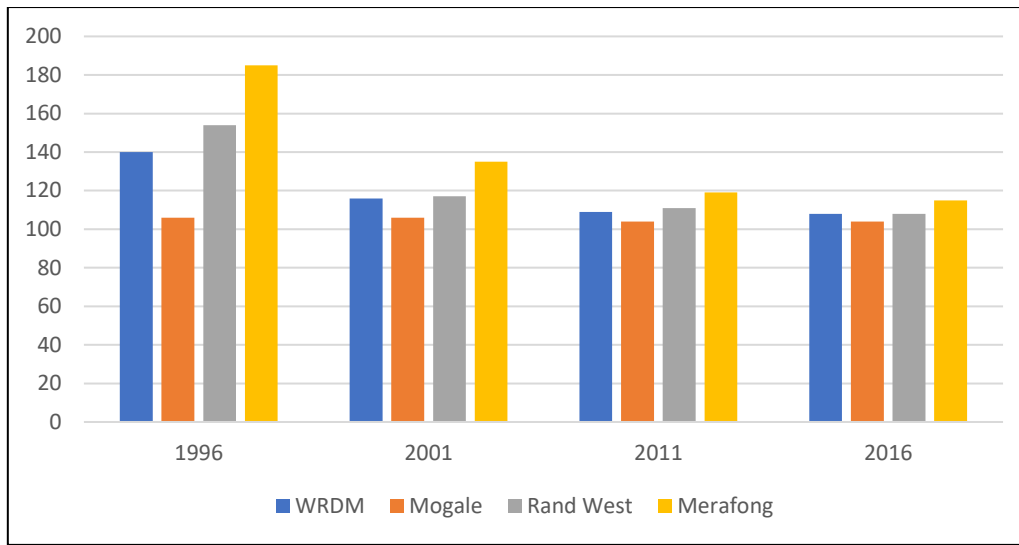


Figure 5.12: West Rand percentages of men for 1996, 2001, 2011 and 2016, per local municipality

Sources: StatsSA (2011; 2016)

The West Rand’s men:women ratio was 140:100 in 1996, and it declined to 111:100 in 2001, 109:100 in 2011 and 108:100 in 2016. This decline could be associated with migrants leaving the West Rand as economic opportunities decrease. This ratio exceeds the provincial average of 102:100 and in Sedibeng 100:100 . Mining continues to dominate economic activities in Rand West City and Merafong City, explaining the relatively high sex ratios recorded in 2016 for the two locations, of 154:100 and 185:100, respectively (StatsSA, 2016). The West Rand sex ratio has continued to decline, but Merafong’s remains as high as 124:100 (StatsSA, 2019).

Men had moved out of the district in search of employment opportunities elsewhere before women joined the industry at a rate of 3% over 2012–2017 (MTS et al., 2018). The out-migration of men in search of other employment can be ascribed to the patriarchal nature of society, which is not unique to South Africa. Society favours the employment of men and often excludes women – a practice that persists in the mining sector (Kaggwa, 2020). Kaggwa (2020) alludes to ongoing global and local efforts to transform the mining sector by changing legislation.

5.4.4 Relatively low levels of education

The mining industry is characterised by labour-intensive operations, and predominantly employs unskilled and low-skilled workers. The literacy rate increased between 2012 and 2017

(MTS et al., 2018). Nevertheless, with the mines closing and people moving out, those remaining behind tend to have relatively low education levels. Table 5.9 shows the percentage of persons aged 20 years and older without secondary education, per the 2016 community survey. The survey noted that 54% of West Rand’s population (both male and female) had no secondary education, which is higher than Sedibeng’s (50.6%) and the provincial average of 45.7%. Also, the two predominantly mining local municipalities have strikingly high percentages of people without secondary education, with Rand West at 57.2% and Merafong at 60.4%.

Table 5.9: Percentage of persons aged 20 years and older without secondary education, 2016

Municipality	Men %	Women %	Average total %
DC 42: Sedibeng	50,3	50,8	50,55
Emfuleni	50,4	50,9	50,65
Midvaal	45,4	43,5	44,45
Lesedi	55,5	57,1	56,3
DC48: West Rand	54,9	53,1	54
Mogale	50	47,6	48,8
Rand West	57,5	56,9	57,2
Merafong	60,9	59,8	60,35
EKU: Ekurhuleni	48,1	48,4	48,25
JHB: City of Johannesburg	45,3	45	45,15
TSH: City of Tshwane	40,9	38,9	39,9
Gauteng	46	45,3	45,65

Source: StatsSA (2016)

The West Rand also experienced a decrease in the number of people with primary education between 2011 and 2016, while the percentage of people who had undergone no schooling increased in the same period. Also notable is the drop in the percentage of people with a tertiary qualifications, from 9% in 2011 to 8% in 2016 (StatsSA, 2016; West Rand District Municipality, 2022b).

Low levels of education contribute to high levels of unemployment (Dias & Posel, 2007; Mpendulo & Mang’unyi, 2018). However, scholars agree that unemployment in South Africa has also increased for people with secondary and higher education levels, especially youth and

graduates. Mpendulo and Mang'unyi (2018) acknowledge the complexity of the unemployment of skilled persons, and attribute it to other issues, such as the quality of education, lack of experience, discrimination, labour market inflexibility, and labour legislation.

Proponents of modernisation blame the decline in mining on the slow pace of adapting more capital-intensive mechanisms and modern technology (Slater, 2018). South Africa's gold mining sector has been criticised for lagging in integrating advanced technology into its operations, keeping it overly dependent on labour (Neingo & Tholana, 2016). From a global perspective and considering the impacts of globalisation, the pressure is on modernising mining operations through technological advancements, thus, changing the employment structure of the sector. Illiteracy remains a significant concern, hence, ongoing efforts to upskill the workforce to improve efficiency and safety. Mines increasingly seek to employ a better-skilled workforce, which is often challenging for the older generation of workers (Slater, 2018). Traditionally, the industry in South Africa mainly employs "illiterate black male general mine workers with limited opportunity to improve their career prospects or employability during their lifetime" (MTS et al., 2018, p. 30). Even when training and capacity-building opportunities are made available, the fact remains that it is "not easy to upskill low-skilled workers" (Marais et al., 2022, p. 13).

5.5 RULE CHANGES AND CONSEQUENCES

Chapter 2 described NIE analytical tools for understanding economic growth and development. It also explained that informal or formal institutions determine the behaviour of the actors and the nature of social interactions, and may enable or impede societal development. Institutions reduce transaction costs and uncertainties, and shape societal behaviour. Scholars refer to institutions as structures in society that determine the relations of individuals, groups and organisations (Wegerich, 2001). The structures (institutions) change, induced by endogenous or exogenous factors, intentionally or unintended, and may change the behaviour of the actors. Powerful individuals and groups determine the direction of institutional change, though the motive may not be to improve social efficiency. Thus, dysfunctional institutions may prevail due to path-dependency or incomplete information.

Mine closure reflects numerous rule changes that transform the socio-economic landscape, thereby affecting different stakeholders differently over a given time. The consequences of

mine closure, such as increases in unemployment, crime levels and community distress were outlined in Chapter 4.

Chapter 3 explained social capital as a factor that determines the development trajectories of neighbourhoods. The higher the level of social capital in a society, the more effectively people are able to respond to changes. Also, neighbourhoods rich in social capital can cooperate to counteract decline, which highlights the importance of people being connected and working collectively to respond to changes in their communities (Weaver et al., 2017). Social capital is determined by the degree of civic engagement (citizens' participation in political decision-making processes, such as voting and advocacy groups), and the level of trust among residents, which encourages mutually beneficial interactions (Temkin & Rohe, 1998). Indicators of rich social capital include a relatively high number of civic organisations, a greater predisposition to collaborate with others in transactions characterised by asymmetric information; slightly lower income inequality; and greater internal community homogeneity (Weaver et al., 2017). Information on socioeconomic variables is useful for planning and urban analysis, and for making projections of how communities will be affected by rule changes. Mine closures are complex and unique to each area, and rule changes may lead to unintended consequences, which are often irreversible. Neighbourhoods poor in social capital struggle to adapt to any form of change.

5.6 CONCLUSION

Changes in socioeconomic conditions and demographics in the West Rand show that mine decline and closure have significantly affected lives and livelihoods. As noted in Chapter 2, the rules (institutions) that determine how to organise access to resources in the West Rand, stakeholders' behaviour, and the cost of exchanges or interactions have changed over the past three decades. The mine closure regulation enacted in 1991 (Minerals Act 50 of 1991) and the Mine Charter endorsed in 2004 set parameters for major stakeholders' behaviour, roles, and responsibilities. As the custodian of minerals in South Africa, the main driver of the economy and the protector of rights, the government is challenged to meet its obligations. The decline in value added by mining to the local economy has contributed to economic opportunities decreasing in the district, has increased poverty and unemployment levels and reduced revenue available for the municipalities to provide public services, especially to poor communities. Historically, gold mining attracted mainly low and unskilled migrant labour – people who find

it challenging to get alternative employment at closure. People in this category (low and unskilled) often stay in the area because they have nowhere else to go and are often forced to earn a living from informal and illegal activities.

The lack of economic opportunities and deterioration of service delivery has pushed some people out; they hope of finding other or better economic opportunities. There is evidence of out-migration in Merafong City and Rand West City municipalities. Decline is complex and each shrinking city is unique (see Chapter 4). The West Rand has to respond to mine decline and closure and adopt appropriate strategies, plans and projects to mitigate the impact of closure. It is a mammoth task that requires the West Rand to collaborate meaningfully with strategic partners, including other tiers of government, mining companies, related industries, businesses and civil society organisations. The literature highlights the critical role of decline planning, and cautions that pro-growth strategies are insufficient to address the impacts of shrinkage and may lead to distress (Wiechmann & Pallagst, 2012).

An appropriate response to mine closure entails accepting decline (also as an institution) and facilitating inclusive and participatory processes that allow affected communities to shape and implement short, medium and long-term strategies that are tailor-made to suit the prevailing and anticipated circumstances (see Chapter 3). The West Rand and its strategic partners have numerous issues to explore, considering the available resources and existing limitations regarding what the district can do. These issues include:

- Understanding and monitoring the consequences of mine closure and its impact on different groups and aspects of the mining community;
- Facilitating approaches that ensure stakeholder commitment and ownership of processes, and build social capital;
- Ensuring inclusivity of processes and listening to the views of different groups (mining community) on what should be done to mitigate the consequences of mine closure;
- Understanding the responses of different groups to mine closure and why such decisions are made;
- Identifying alternative economic activities and ensuring sustainable development in different parts of the district;
- Identifying the advantages of decline;

- Agreeing on the role played by the various stakeholders and partners in developing, implementing and committing to the strategies and plans;
- Incorporating social aspects and cost of closure in local strategic planning;
- Supporting survivalist mining and informal sector activities;
- Understanding how regulation is abetting or preventing effective mine closure in the West Rand;
- Ensuring compliance with mine closure regulations; and
- Deterring crime and enforcing law and order.

In conclusion, Chapter 5 diagnosed mine decline and closure, including its associated consequences, and emerging demographic changes. Chapters 6 and 7 will describe how stakeholders in the West Rand respond to mine closure. It will also emphasise how important it is for stakeholders to understand the macro and micro-institutions (rules) that affect how they respond. The chapters will acknowledge the unique institutional framework of the West Rand and explore how changing institutions affect local economy and settlement patterns.

CHAPTER 6: INSTITUTIONAL RESPONSES TO MINE CLOSURE: THE LOCAL ECONOMY

6.1 INTRODUCTION

Chapter 2 explained that bounded rationality leads to uncertainty and opportunism. Institutions and their enforcement help set the ground rules for human behaviour. Hence, each society has a unique institutional environment with formal and informal rules. Economic and political institutions are interdependent. North (1993) explains that economies need institutions to explain the complex economic changes and policies. These institutions analyse the polity as it determines and enforces the formal rules. Furthermore, institutions do not necessarily improve efficiency, but reflect the interests of powerful groups (North, 1993; Wegerich, 2001). Chapter 3 examined the importance of understanding the causes and effects of urban decline. Mine closure is often a prominent reason for urban decline, but there is relatively little literature on mine closure and shrinking cities. Unlike economic growth, shrinkage often symbolises failure. However, there needs to be greater understanding of governing shrinking as an institution, as it often involves a rule change (Aurambout et al., 2021). Chapter 4 explained the complexities associated with mine closure. The abandoned mines, their negative consequences on the mine-hosting communities and the weak mechanisms for enforcing the regulations and institutions are of concern. The institutions governing mine closure are important, and they also need to consider the social aspects of closure. Chapter 5 discussed the changes related to mine closure in the West Rand. It provided an overview of patterns related to the weakening local economy, increasing unemployment, a growing informal sector and informal settlements, increasing social unrest and crime, dwindling municipal finances and the changing demography of the district. This list mirrors factors identified as critical drivers of shrinkage (see Chapter 3), though shrinking is seldom recognised as an institution or rule change.

This chapter will analyse how the changing rules of mine decline affect the main stakeholders (communities, mining companies, and government) and the local economy. The chapter consists of four main sections. To understand rule change, I will first discuss the rules, before I explain mine downscaling. Secondly, I will use evidence gathered from communities, governments, and mining companies to analyse causes, effects, and interrelationships of decline. The third section will examine the rules, rule changes and consequences. The final part

will analyse the government's responses to closure and respondents' ideas for countering the effects of closure.

Figure 6.1 presents the conceptual framework of this chapter.

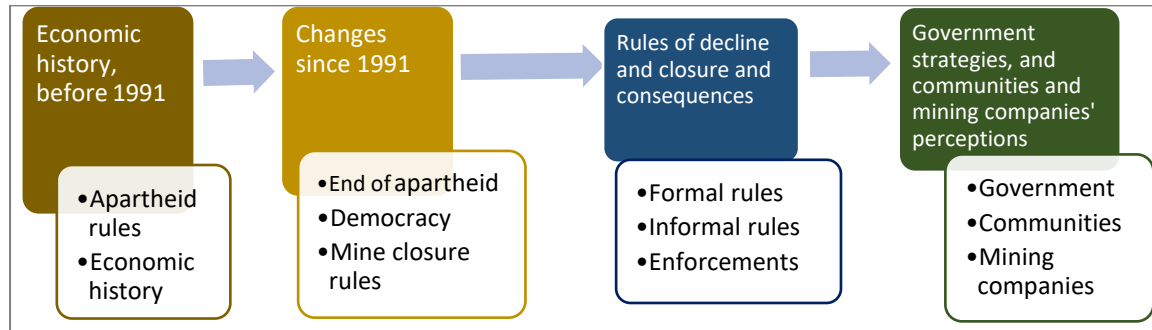


Figure 6.1: Conceptual framework

6.2 ECONOMIC HISTORY

Before 1991, South Africa had limited mine closure legislation. There were few closure rules, and closure usually meant abandoning the mine. Mining was a source of government revenue and received ample support, including access to cheap Black migrant labour (Crush & James, 1991; Harington et al., 2004). Policies favoured large mining companies and mining helped shape apartheid laws (Cronjé & Chenga, 2009; CJPME Foundation, 2014; Leonard, 2018; Macmillan, 2017). In that time, gold was a principal contributor to South Africa's gross national product.

Influx control and other apartheid legislation envisaged three main outcomes for the mining industry: an uninterrupted supply of cheap Black labour, keeping cities 'White', and strict land use control (Vosloo, 2020). Apartheid rules focused on racial segregation, controlling African labour, and urbanisation (SAHO, 2022). Cooke (in Vosloo, 2020) describes it as "perhaps the most destructive social engineering of the country's history". During apartheid, the mining industry kept production costs 'artificially' low (Van Eeden & Durand, 2009, p. 52) by accessing cheap labour (Harington et al., 2004). Furthermore, the apartheid government considered the mining industry's interests over the negative environmental and social impacts (Leonard, 2018; 2019; Van Eeden & Durand, 2009). Mines had limited responsibilities in relation to mine closure – they did not need to close mines and could simply abandon them (Swart, 2003), leaving South Africa, today, with about 6 000 abandoned mines (Watson & Olalde, 2019). The absence of mine closure rules had three main consequences: environmental

degradation, no rehabilitation was done, which inhibited the development of new economic activities, and unlawful access was given to these mines, which fosters illegal mining.

6.2.1 Rules during the mining peak

Gold mining attracted foreign capital and a large workforce (Harington et al., 2004; Swart, 2003). Several rules dominated the peak of mining in the West Rand. These issues are discussed extensively in the literature (Harington et al., 2004; Pillay, 1981). This section will provide a brief overview of and lay the foundation for discussing the changing rules associated with mine closure, by briefly mentioning 11 characteristics associated with the rules of mining growth under apartheid and colonial rule.

First, mining companies used sophisticated equipment and large quantities of labour (Pillay, 1981; Spay, 2014; Vosloo, 2020). Second, the mines sourced cheap migrant labour from neighbouring countries through bilateral agreements (Harington et al., 2004). Third, the government used a ‘poll tax’ (introduced in 1906) on Black men and a ‘hut tax’ for each Black household to force Black men to seek employment (CJPME Foundation, 2014; Sisulu, 1956; Vosloo, 2020). Fourth, women remained in the rural areas, where they were responsible for subsistence farming, childcare and other domestic chores (Harington et al., 2004). Fifth, the mines recruited illiterate and low-skilled men and the government granted them temporary entry into South Africa (Rugunanan & Xulu-Gama, 2022). Sixth, it was a criminal offence to abandon one’s contract job (CJPME Foundation, 2014). Seventh, while men dominated migration, women often followed their spouses (often illegally). Eighth, influx control meant Black people could not live in urban areas, so, mineworkers resided in mining compounds and migrant labour hostels designed to control their movement and behaviour. The government used the compounds to segregate and ‘protect’ White communities from Black male mineworkers. Ninth, mining operations in the West Rand did not consider mine closure – government regulation did not require this. Consequently, communities believed mines would remain open and never anticipated mine closure. Tenth, the profitability of mining operations depended primarily on the unpredictable price of gold. Since global markets controlled the price of gold and other metals, mining companies could not pass on the cost of production to consumers. Hence, they had to keep wages low (CJPME Foundation, 2014). Lastly, the mining industry had support from the government, which provided subsidies during difficult times (Pillay, 1981).

6.2.2 Changing rules from the mid-1980s

Employment in South Africa's mining sector peaked at 756 000 workers in 1986, when the government repealed influx control (Macmillan, 2017). In the 1980s, the migrant labour system became less attractive because of international pressure, internal political struggles and the growing need for mechanisation and skilled labour (Pillay, 1981). By the late 1980s, several factors affected the mining industry: labour was scarce, labour turnover was high, recruitment costs increased, and there was an increase in non-compliance with labour laws (Pillay, 1981; Vosloo, 2020). Furthermore, the mining labour force unionised by establishing the National Union of Mineworkers in 1982.

When the government repealed influx control in the mid-1980s, Black mineworkers could move more freely. Furthermore, mining companies recognised the skills of Black mineworkers for the first time in 1988 (for example, by providing them with blasting certificates) (Macmillan, 2017). Henceforth, Black mineworkers increasingly took over work previously done by White men. Then, in 1991, the apartheid government repealed the Group Areas Act and ended residential segregation (Macmillan, 2017). Relaxing migration and settlement regulations meant that families could join the mineworkers. In turn, this contributed to the growth of the informal settlements near mines (Marais et al., 2020). Consequently, the scale of remittances sent to rural areas declined (Macmillan, 2017). Some workers began to demand single-person or family units to replace single-sex hostels. Mines were also pressured to provide their Black and White workers the same benefits. By the early 1990s, living-out allowances also became possible for Black mineworkers, but did not necessarily improve the housing conditions of black mineworkers (Marais & Venter, 2006).

By the mid-1980s, there was increased pressure from mining communities to regulate mining activities, as gold mines contributed to excessively high levels of toxic, radioactive material and acid mine drainage (Van Eeden & Durand, 2009). On the one hand, mining regulations had to attract other investments, promote mining activities and boost the economy while, on the other hand, the regulations had to control resources and protect people and the environment from adverse consequences (Kung et al., 2020). Simultaneously, abandoned mines became opportunities for *zama zamas* to access unclosed mines (Phala et al., 2017; SAHRC, 2013).

6.2.3 Changing institutions since 1991

The early 1990s saw the end of many apartheid restrictions and practices and enabled the transition to democracy. Ironically, this transition coincided with large-scale mine closure in the West Rand. The Minerals Act of South Africa (1991) was the first law (formal government rule) to enforce elements of mine closure (Swart, 2003). The Minerals and Mining Policy White Paper (1998) and the Minerals and Petroleum Resources Development Act (MPRDA) followed in 2002.

These new policies, in force since the early 1990s, emphasised addressing past injustices. The emphasis was on changing the ownership structure of mining companies (for example, through the various Mining Charters), dismantling migrant labour and ensuring equal employment rights (DME, 1998; Macmillan, 2017). Environmental and closure legislation was also changed. For example, the Minerals Act (1991) prioritised environmental protection, introduced the polluter-must-pay rule and required mining companies to pay for the rehabilitation and closure of their mines. The National Environmental Management Act (NEMA) 1998 (Act No. 107 of 1998) provides for cooperative environmental governance (including mine closure). Most of these closure requirements focused on the environmental aspects of closure, though there was some reference to social and economic aspects. For example, the White Paper emphasises preserving mining employment, limiting job losses and the negative consequences of mining decline (DME, 1998). The state must assist employers, employees and host communities where large-scale reductions are inevitable. Furthermore, the Minerals and Petroleum Resources Development Act (MPRDA) 2002 adopted the principles of sustainable development and required mines to develop SLPs. Through the SLPs, mining companies are expected to contribute to the socioeconomic development of the hosting and sending communities. These plans had to deal with closure as well.

Despite the new legislation, environmental issues dominate mine closure literature (Marais, 2023). Furthermore, the new mine closure policies and statutes do not apply to previously abandoned and ownerless mines, and the state remains responsible (DME, 1998). Research has also taken note of the “unhealthy closeness between the mining and political leaderships” and the government’s inability to control the industry (Macmillan, 2017, p. 279). Leonard (2018) claims that mining companies manipulate weak local authorities to influence governance and democratic processes in mining communities.

6.3 RULE CHANGE 1: FROM GROWTH TO DECLINE

Chapter 2 reported how uncertainties, weak enforcement of rules and corruption frustrate the efforts of law enforcers. Trust is essential for reducing uncertainties, complexity, and transaction costs, enabling cooperation and abetting development efforts (Ferrini, 2012; Zikos, 2020). Postapartheid legislation prioritised sustainability, emphasised the transformation of the mining sector and raised hopes for workers and host communities (Muswaka, 2017). NIE scholars indicate that the failure of institutions to fulfil their functions disrupts socioeconomic activities and may lead to conflict (Shirley, 2005). Mine decline disrupts the high expectations of communities, creates a misconception about why the mine closed, leads to mistrust of mine companies and political and government leaders and has a range of negative consequences.

6.3.1 From high expectations to living with the decline

Postapartheid legislation created the expectation that mining would benefit communities. However, this seldom happened. The initial hope developed into despair partly because of mine closure. Mine closure changed the rules of engagement and expectations. Participants in this study often said, “This is not our land”, “Everything we do here, we must get permission from the mines first” (FG3, Q46),⁸ “Mines have brought nothing”, and “We are left to deal with the dirt and illness” (FG3). Respondents often framed the current problems against historical wealth in mining areas and the decline coinciding with the transition to democracy, and blaming the current government. A participant said,

When we grew up, we were the richest mine in the world. Mines were doing everything for their employees and communities. However, since democracy came in, everything has failed. (FG3, Q41)

This utterance indicates that mine closure shattered people’s expectations of a democratic dispensation. The respondents felt abandoned by the mines and betrayed by the government (“everything has failed”). New legislation (to be discussed in Section 6.5) had little or no effect on the realities of the people who had to cope with mine closure. The decline as an economic rule became overwhelming.

⁸ FG is focus group number and Q is the quote number.

Furthermore, the decline brought scepticism about the role of politicians. The common perception was that politicians benefited from mining and that the rules to protect the community favoured politicians. One respondent reflected on this perception by saying, “That is why people [politicians] are getting arrested by the Hawks⁹ because they are eating [taking bribes]. Politicians are so much involved in the mines” (FG3, Q42). In addition to the role of politicians, many respondents spoke about corruption and how decline and corruption were linked. They often accused police officials of taking money from the *zama zamas*. There is suspicion that mining companies benefit from illegal mining by continuing illicit trading after closure, but through the *zama zamas*. The absence of appropriate mine rehabilitation is used as a motivation for this argument, because it gives illegal miners access to the shafts. Respondents often mentioned that corruption had become a culture and has infiltrated all socioeconomic activities, which distressed communities, hindered progress and dampened hopes for a better life. Corruption is also associated with unemployment, and there is a belief that bribery can get you a job in the mines. One respondent cited an example of a hospital that was donated to the government by a mining company:

The government renovated the hospital, but it was not reopened. Now, people are vandalising it again. Soon, another tender will be out, and someone will get the money. Communities anguish over the loss of moral fibre, which is associated with job losses. (FG3, Q18)

These responses expose a sense of despair in the communities, primarily because the rules and regulations they had hoped would correct past imbalances are, in their view, ineffective. Mine closure and decline render them ineffective. Societies expect rules and regulations (institutions) to maintain a sense of fairness, enable credible transactions, and control human greed and destructive behaviour tendencies. The responses above show that the absence of mine closure rules, or non-compliance (to be discussed in Section 6.5) and changing rules have not brought much prosperity.

6.3.2 Mine closure perceptions

Chapter 4 reported on the complexity of mine closures and the difficulty of predicting the life span of mines. In South Africa, mine closures result from numerous factors, including depleted mineral resources, global competition and mining competitiveness, liquidation, non-

⁹ The Hawks is an arm of the South African Police Service.

compliance with statutory requirements and an unreliable power supply (Ackermann et al., 2018; Centre for Development Support, 2006). In the West Rand, there is a diverse set of perceptions about mine closure. The diversity of views can be attributed to a lack of information and trust and competing agendas. NIE scholars explain that, when a society must deal with complex problems, individuals sometimes act on incomplete information, which leads to inefficient institutions persisting and hindering productivity and economic growth (North, 1990; Wegerich, 2001). North (1990) argues that weak institutions will persist when they are supported by powerful, influential stakeholders who act as gatekeepers to institutional change (Wegerich, 2001).

Respondents employed by government and mining companies acknowledged that mines close when they become unprofitable. Despite this acknowledgement, few understood the decline as a new rule. For example, many ignored the decline and kept on planning for growth. Evidence that the decline was ignored, as a rule, also came from interviews with community respondents. Some even said it was a false narrative. For example, community representatives dismissed reasons for closure as excuses for ulterior motives. For these respondents, the lack of profitability, violence, and social unrest should not be used as excuses for closing mines. Respondents believed that companies cannot close the mines considering that informal miners can thrive. Many community respondents said mineral depletion was not the reason for large mines closing; instead, it meant that the overheads of these large mines make them unprofitable. Companies or individuals with lower overheads would be profitable. Hence, the need to acknowledge artisanal and small mining activities was often expressed at the Bench Marks Foundation conference (2022).

Respondents were particularly vocal about abrupt closure without notification. Municipalities are essentially powerless and unable to intervene. Many companies blamed closure on the increase in energy costs and the lack of reliable energy. Community responses suggested that the mines should sponsor Eskom and that power outages should not be an excuse for mine closure. Generally, respondents believed the government had not exercised its responsibility for keeping the mines open.

On the one hand, the above perceptions point to feelings of exclusion. On the other hand, it expressed a need for more transparency about closure. Many respondents said that mine closure practices are a product of the system of oppression. Speakers at the Bench Marks Foundation (2022) conference said that community interests are ignored at mine closure. Many respondents

believed mines could reopen if there was political will. However, the views expressed by the communities show a significant information gap on mine closure issues.

Despite overwhelming support for the idea that mine closure is unnecessary, some respondents acknowledged that mining companies have been “battling with profitability”. One respondent said people had not taken mine closures seriously in the past, as “mines have been closing down for the last 50 years, but they never close. But now they are starting to close” (R5, Q19). This statement indicates that mine closure is often spoken about, but mines find ways to prolong mining life, thereby contributing to the perception that mine closure should not happen. There was also an acknowledgement that company ownership could change and placing mines under care and maintenance are early warning signs of closure. However, care and maintenance was often considered a conspiracy to allow the *zama zamas* to move in and undertake illegal operations.

6.3.3 Mistrust

Chapter 3 described urban shrinkage as a complex and multidimensional phenomenon characterised by population loss, economic downturn, structural crises and social problems. Chapter 4 discussed the complexities of mine closures caused by many stakeholders with diverse interests, values and abilities (Chaloping March, 2017; Lane & Kamp, 2013; Linde et al., 2012). Often, communities feel they are unfairly treated, which creates tensions at closure. Curtis (2009) refers to uneven power relationships between mining companies and communities. The uneven availability of information during decline negatively affects trust, cooperation and relationships (Herz et al., 2016) (see Chapter 4). Van der Watt and Marais (2021) refer to high levels of antagonism and cite manipulation, dishonest communication, suspicion, stereotyping and distrust among the key stakeholders in mining areas. Watson and Olalde (2019) cite the lack of readily available information as a challenge for mine closure. Mine closure can increase mistrust. NIE acknowledges the critical role of trust in reducing transaction costs, improving investments and creating stable relations, and promoting credible contracts, learning, knowledge exchange and innovative ideas (see Chapter 2).

Mistrust is at the core of many of the local responses. Respondents referred to inequalities in the system, and communities feel disadvantaged and unfairly treated by the system. One respondent said,

Most of the information is with the government and big companies with resources, and they can get lawyers and other experts. Lawyers benefit most because regulation determines how money is made in the industry. So, companies get excellent legal teams and try to take advantage of any gap in the legislation. (R7, Q11)

This respondent reported that legal action is too expensive for the communities to undertake, even when the law is openly breached. The statement also emphasises that consultants drive regulation. Communities seldom have these capacities. Power imbalances contribute to mistrust. One respondent believed that organised labour could assist:

The beneficiaries could be more sophisticated. Only a few unions like Solidarity and NUMSA have realised that being empowered with information, being thorough and following up on what is supposed to be done is critical for survival, ... even though this realisation came late, (R7, Q11)

Focus group respondents expressed the need for communities to be aware of the long-term impacts of mining and the implications of closure. Because of high poverty levels, communities' main concern was the economic impact, not environmental hazards or health risks. Respondents often referred to the wide range of mistrust. One respondent spoke about unscrupulous individuals who were dividing communities and preventing people from speaking out. Political connections and corruption work against the laws developed to eradicate the negative impacts of mining and mining closure. Community leaders are bribed, divisions are created, and regulation and enforcement systems are weakened, thereby challenging the objectives of democracy (Leonard, 2019).

6.3.4 Consequences of closure

Chapter 4 explained the social aspects prevalent in mine closures and how they distress local communities by disrupting employment and livelihood opportunities (Perkins et al., 2020). Chapter 5 confirmed the magnitude of these disruptions in the West Rand. Scholars indicate that, when mining activity is introduced, communities become overly dependent on it as a source of livelihood. Marais et al. (2022) refer to various dependencies that are created by the growth of mining which make it difficult for municipalities to plan and manage. Hence, when mining declines and closure happens, it disrupts these dependencies and distresses communities. Mistrust in stakeholder relationships, as discussed in Section 6.3.3, are at the core of the problems emanating from closure. NIE views almost all kinds of relationships as

contracts. Williamson (2002) points out that written or unwritten contracts are never correctly enforced or entirely complete, because of limited information (bounded rationality). Sadly, unenforced contracts create more mistrust.

6.3.4.1 Distressed communities

The closing of mines and the departure of businesses from the West Rand have increased unemployment levels and led to the rapid expansion of informal businesses (see Chapter 5). Below, I outline how people viewed the consequences of decline.

Respondents associated mine closure with a variety of consequences. A respondent explained this reality as follows:

Mining has gradually but steadily declined to such an extent that we have what I would call ghost towns or distressed mining towns. Many people have been retrenched over the years and are now unemployed because fewer economic activities are occurring in the region. Some people would not have returned to where they originally came from but still reside within the West Rand. This has affected both the district and local municipalities. (R1, Q5, Q6)

This explanation alludes to the perception that migrant mineworkers who used to be employed in the mines still live in the West Rand. Their presence contributes to the high unemployment levels and exerts pressure on the municipal infrastructure. Most respondents described the unsightly towns and townships and said mine closures have deteriorated neighbourhoods. Although the concept of a ‘ghost’ town is used too easily, respondents use it to explain the lack of jobs (not necessarily to show a population decline). The quote above indicates that mine closure does not necessarily lead to a declining population, which is one of the key differences between South Africa and most other places experiencing decline. The absence of population decline increases the pressure on an already distressed environment.

Another concern associated with mine closure was the high levels of unemployment. Respondents blamed unemployment for high stress levels, depression, hopelessness, vandalism, and idleness; drug abuse is often a social consequence of these realities. Representatives of advice offices saw fewer labour-related cases because of the increased unemployment. Many people have given up looking for employment. Unemployment creates further social disruption. Interviews exposed that mine decline and closure had directly or

indirectly destroyed families and social networks. A respondent explained the domino effect of closure:

When a mine closes, the first culprits are workers. But workers have families and form part of the communities. The families get disorganised. The worker loses his job, and several undesirable consequences happen: havoc in the family, gender-based violence, crime, etc Unfortunately, the male ego plays a critical role here; social disharmony exists. The affected families' instability leads to violence, healthcare problems, HIV, prostitution etc. (R7, Q6)

This explanation points to the high levels and variety of social disruption concerns. Respondents often spoke about increased family disputes, maintenance and divorce cases because of mine closure.

The social disruption also extended to crime (of which a statistical overview was provided in Chapter 5). Focus group respondents spoke of increased theft, and cited cases of stolen cattle and crops. Many respondents said the crime resulted from food insecurity, which was increasingly affecting more households. For example, a farming project teaching people skills had had its crops stolen and had been forced to close. Not only were communities' rights violated by the incidences of theft, but it ended well-intended projects to teach subsistence farming. Crime incidents forced some people to leave the mining communities, including leaders of local churches, schools and businesses. The people who left often were individuals with the potential to lead the transition after mining. The loss of influential and skilled people accelerated the downward spiral of the local economy.

A respondent emphasised that mineworkers should prepare themselves for closure and decide whether to stay or return home when they lose their jobs. The respondent said that.

Some workers are left in between, and they become destitute. So, mine closure creates a group of disenfranchised and confused people, which may make social ills problematic in the mining communities (R7, Q7).

Frustrated communities responded violently, and community protests increased. People become desperate and attempt to earn a living. The informal sector grows as people struggle to find alternative sources of livelihood. While some mining companies have proved responsible by responding to community concerns and taking steps to comply with the regulations, others are not bothered. Communities are distressed, and many feel helpless and afraid of reprisal. One participant expressed feelings of unfairness, and said:

Gold is a miracle created by God, but certain rich people have rights. They have set up these rules against mining. You cannot even dig. Even if it is in your yard, we only own the topsoil, which is unfair. Nobody gives fertilisers for gold to grow. It is everybody's gift, but our government and those [mining] don't help us. (FG3, Q25).

Considering the destruction caused by the mine decline and closure, one respondent was concerned that there seemed to be no mine closure funds to cover rehabilitation costs. Also expressing concern and mindfulness of the high levels of corruption, another said that mine closure funds are exposed to abuse. When closure funds are abused, communities and mineworkers suffer the consequences, because they are the least powerful (R6, Q30). Seeing the destruction caused by mining and considering the likelihood that there are no funds for rehabilitation is distressful. "So now the question remains, who is going to rehabilitate that land? The soil has been poisoned by pollution. A myriad of problems exists. It is a disaster zone. It is a worst-case scenario" (R5, Q50).

Environmental hazards from unrehabilitated mines are another significant concern. Distress is caused by the likelihood of children drowning in open pits, fires burning underground, acid mine drainage in unrehabilitated mines, environmental degradation, and tailing dams causing air pollution and unrehabilitated stockpiles of materials are left lying around (Bench Marks Conference, 2022). In addition, when such incidents happen, communities do not know where to report them. One respondent said:

It is unacceptable when mining companies move on, leaving gaping holes in the ground, polluted rivers, and unenriched and disrupted communities. Unfortunately, that is exactly what happened. (R8, Q13)

Furthermore, funds for rehabilitation are meagre (Bench Marks Conference, 2022). So, the government takes over the liability when business rescue or liquidation sets in. There was often a reference to the Mogale Gold mine, operated by Mintails South Africa. In 2015, the DMRE issued a notice to Mintails for failing to comply with the financial provision for environmental liability. The DMRE reported that Mogale Gold had an environmental liability of more than R383 million and had made financial provision of only R2.6 million (Molafo, 2022). This shortfall was reported as being a liability inherited by the DMRE. Unfortunately, the DMRE has not taken steps to prevent such inheritances from reoccurring and ensuring that mines take responsibility for their actions (Bench Marks Conference, 2022).

The views reported in this subsection reflect a shared sense of unfairness, anger, and despair about what the government has allowed. The focus group participants shared similar perceptions, by blaming the government and mining companies for the deterioration of the local economy, their livelihoods, and the moral fiber of the community. The government, in turn, is desperate to find solutions and implement growth and expansion strategies; it is understandable that it is prioritising efforts for job creation and revitalising the local economy. Yet, there needs to be greater understanding of economic decline and how to respond to it. NIE explains that institutions determine the behaviour of both individuals and the government. Effective institutions enable individuals to access information and economic opportunities to improve their livelihoods, hold leaders accountable, and ensure that policies and systems are in place to optimise resources (Mkandawire, 2009). Hence, there is a need to empower communities to exercise their rights and understand and take ownership of their development, including mining decline and closure processes.

6.3.4.2 Governance, municipal finances and restructuring

Weakening governance and dwindling municipal tax income are symptoms of shrinking cities (Chapter 3). Chapter 5 analysed the impact of mine closure on West Rand's municipal finances. In South Africa, the decline in mining has meant declining profits and a decrease in taxes paid by mining companies (note that mines do not pay land tax on the mining land to local municipalities) (Curtis, 2009). Job losses from mine closure mean fewer people can afford to pay for municipal services or land taxes.

In several interviews, Mogale is described as coping better than Rand West and Merafong (see Chapter 5). In Chapter 5, I indicated that, in Mogale, it had been possible to replace jobs lost in mining with jobs in manufacturing. This was not possible in the other two municipalities. The decline in mining, which adversely affected economic activities, was the main reason for restructuring municipal boundaries. The impacts of decline and closure have forced West Rand to reconfigure its governance operations to utilise the dwindling resources optimally. One respondent said,

Randfontein and Westonaria were separate neighbouring municipalities, both heavily relying on mining, but with the revenue base shrinking tremendously, a decision was taken to merge them to form the Rand West City local municipality. (R1, Q7)

The merger was an attempt to adapt to decline, because Westonaria and Randfontein were financially distressed. A Municipal Demarcation Board (2021) study shows that the merger should improve service delivery. Creating a single municipality had the goal of addressing fragmentation issues and improving resource management and efficiencies through economies of scale (West Rand District Municipality, 2021). There is little evidence that these ideals were achieved.

Respondents concur that the municipalities in the West Rand are increasingly struggling to meet their obligations. Responses show a sense of frustration and an attempt to find ways of getting things back to the way they used to be. The shrinking cities model advocates moving away from pursuing growth as the primary goal and instead developing socioeconomic policies that address the decline and its social effects, particularly on vulnerable groups (Cunningham-Sabot et al., 2016). Two categories of institutions are essential for economic growth (see Chapter 2): those that promote economic exchange and encourage trust, and institutions that influence powerful actors, including the state, and protect people's rights and private property (Shirley, 2005). These two categories ought to be priority areas for community empowerment.

6.3.4.3 Illegal mining

Illegal mining is a global phenomenon with social consequences, which affects livelihoods, economies, public health and the rule of law (UNDOC, 2022). The MPRDA (2002) prohibits mining without the required statutory authorisation. Despite being illegal, it is becoming more prevalent, mainly in abandoned or closed mines. In the Witwatersrand Basin, illegal mining has been described as posing an increasing threat to the security of people, industry and the state (Field, 2022). As explained in Chapter 5, the presence of illegal miners have led to widespread conflict and criminality over the past years. Despite the closure rules in formal legislation, closure often leads to informal mining.

Respondents generally believed that abandoned and closed mines had created illegal mining. The rule of closure creates new, illegal operational rules. One respondent said, “Mine closure and crime are directly related to one another, so if you cannot close mines properly, you cannot deal with crime” (R6, Q25). However, the mining closure rules in force since 2002 do not apply retrospectively. For example, mines that closed before 2002 do not need to comply. Respondents expressed there was no accountability for companies that had abandoned mines or when liquidation occurred. Respondents were also concerned about mines failing to comply

with the closure requirements. Others claimed that mines were not trying to stop the illegal activity.

The change from legal to illegal mining led to criminal activity, which triggered a counter-response from communities. For example, some communities became vigilant, taking action to stop the *zama zamas*. However, they are not able to reach syndicate leaders. One respondent reflected on this irony and said that, in contrast to syndicate bosses, “the miners get assaulted by the communities and police. That is the tragedy of everything” (R11, Q37). Another respondent explained using the following words:

Ordinary citizens are just being disruptive and allowing for more criminality. Nevertheless, I understand that there are emotions involved. People are more upset with themselves because they have allowed this to continue for a long time; hence, the uprising is coming out of the communities. (R3, Q46)

The statement above shows communities are upset and have resorted to vigilantism because they cannot rely on the police.

Xenophobia is a significant concern linked to illegal mining. Mines in South Africa have always drawn labour from various countries, particularly from the SADC region. One respondent explained as follows:

Xenophobia is the war between people with low incomes and people experiencing poverty. It is not pitting wealthy mine owners against dispossessed people. It is pitting poor and disposed people against victims of mine closures that have not been done correctly. *Zama zamas* have lost their employment and are trying to seek survival, which pits them against the local communities. (Bench Marks Conference, 2022)

This view reflects the divisions in the communities that have been created by illegal mining and exacerbated by poverty and powerlessness.

Another source of frustration was that mines no longer employ workers directly, but instead use subcontractors and labour brokers as agents. A worker recruited through an agency has different rights than a mine-recruited worker. Respondents believed that illegal miners access formal mines through agents and engage in ghost operations underground. An attendee at the Bench Marks Conference said, “When those illegal miners are killed or arrested, their recruiters deny knowing them” (Bench Marks Conference, 2022).

Responses emphasise that political will and awareness are critical to adapting to the rule of decline and solving the problem of illegal mining. R11 observed:

When we do not manage mine closure, we are launching people knowledgeable about what is happening underground into impoverished communities with no jobs and services. This is a top-down issue, where we go for the kingpins. Once you cut out that middleman, then the supply of the material will stop somewhere, and then it will be easier to deal with it. (R11, Q37)

The Association for Artisanal and Small-Scale Miners distances itself from *zama zamas*. While *zama zamas* are synonymous with informality and criminality, the activities of the Association for Artisanal and Small-Scale Miners are peaceful and beneficial to the communities (Bench Marks Conference, 2022).

The above views show frustration about rapidly expanding illegal mining and a belief that small players should benefit from mining activities. The frustration is due to the criminality associated with illegal mining. There were calls to decriminalise certain informal elements of illegal mining and support small-scale miners. However, there is also a belief that illegal miners will find a way to get back to the shaft, even if the mine is sealed. Respondents cite several options for the government to stop illegal mining, but also refer to a need for greater political will to curb this devastating phenomenon.

There was also a perception that the government should provide conditional grants to enable relevant departments to address the issue of derelict and ownerless mines and close them properly (Bench Marks Conference, 2022). Although it is evident from the respondents that a great deal needs to change to improve the situation, NIE scholars observe that changing institutions is often difficult, because powerful forces work behind the scenes to fortify the status quo (Acemoglu & Robinson, 2008).

Zama zamas often benefit the local economy (see Bench Marks Conference, (2022)). For example, one respondent said, “We sell consumables to them. They [*zama zamas*] support our businesses and pay rent for their accommodation, which is a valuable source of income for many [of us]” (FG3). Living with these dependencies on mining and the associated problems remains difficult.

6.4 RULE CHANGE 2: FROM MINING AND CORPORATE SOCIAL RESPONSIBILITY TO SOCIAL AND LABOUR PLANS

Historically, mines have provided extensive community support through CSR. The MPRDA changed this, and required the development of SLPs. Post-1994, the South African government viewed CSR as an essential tool for restorative justice to redress the legacy of apartheid (CALS, 2016; Siyobi, 2015). The new rules required mining companies to submit SLPs to the regulator (DMRE) to obtain a mining licence. What was voluntary became a licencing requirement. Collaborative governance between local government and mining companies requires SLPs and integrated development plans to be aligned (Siyobi, 2015; Van der Watt & Marais, 2021). Mines had to channel their social investments through local government. The change affected the historical direct relationship between mines and communities and created new problems (CALS, 2016; Van der Watt & Marais, 2021).

Governance refers to a system that brings together a variety of players to make collectively binding decisions and respond to an ever-changing society characterised by dynamic networks of actors, discourses and institutions (Assche, Beunen, & Duineveld, 2014). Governance is about power (who has the influence), relationships (who decides), and accountability (who is accountable) (Vymětal, 2007). The implementation of collaborative governance in all government development initiatives remains a challenge. More guidelines are needed to facilitate positive relationships and ensure joint planning, mutual accountability and transparency (Van der Watt & Marais, 2021).

Emerson et al. (2011) identify the following components in collaborative dynamics: principled engagement, shared motivation, and capacity for joint action; these components also called the critical drivers of collaboration. Principled engagement refers to arrangements that enable people with diverse interests and abilities to work together to address problems or create value based on agreed-upon principles such as fairness, equality and transparency. Shared motivation may be initiated by (but also reinforces) principled engagement and consists of mutual trust, understanding, internal legitimacy, and commitment. The joint action capacity is generated by parties collaborating for a shared purpose, including procedural and institutional arrangements, leadership, knowledge, and resources (Emerson et al., 2011). Respondents believed that all three drivers were inadequate in mine closure processes, making collaborative governance an unrealistic goal given the existing socioeconomic and historical barriers to collaboration.

Although the SLP guidelines provide some direction in the case of mine closure, it was designed largely to operate in stable or growing mining environments.

6.4.1 Closure plans and managing dependencies

Mine closure requires long-term planning (Marais, 2023). The relationship between mining companies and the host communities is at the heart of the paradigm shift from CSR to SLP. People should be at the heart of mine closure, which emphasises the importance of integrating technical, scientifically proven solutions with social and cultural interpretations of the local circumstances (institutions) (Chaloping March, 2017) (see Chapter 4). The assumption is that communities should participate in integrated development planning, which should be aligned with the SLP. Furthermore, planning should be based on reality, therefore, decline should be prominent. Furthermore, global standards require the integration of mine closure activities into the mine life cycle (ICMM, 2019). Yet, this notion seldom extends beyond the mining company (Marais, 2023).

Respondents emphasised the need for mining companies and the government to publicise mine closure plans. The plans should show how it will deal with the impacts of closure (including social impacts). Furthermore, the change from CSR to integrating SLPs and integrated development plans was viewed by some respondents as releasing the mines from having to engage with mining communities. One respondent summarised the change in approach by mines (now needing to do collaborative planning) in the following words:

We no longer care for you; go to your municipality. When we [the community] go to the municipality, we are told to go to the mines. The community got angry and started to strike.

The rules for engagement changed when the government introduced collaborative planning in the form of SLPs, and it allowed mining companies and municipalities to shift responsibilities. This pressure for social engagement has increased because of mine closure (see Section 6.3.4 for consequences of mine closure). These increased pressures, widespread corruption and mistrust reveal that collaborative planning seldom deals with the consequences of closure. Part of the reason for shifting responsibilities is that neither the mines nor the municipality plan for closure. Generally, the closure rules are vague. Although detailed legislation governs some of the environmental aspects, the assumption that social aspects are included in the environmental aspects is not helpful.

There were also several complaints about the role of the DMRE. People expected this department to help enforce the existing closure rules and plans. Yet, this did not materialise. A respondent said, “The preparations for this [practice], the transparency and monitoring of it by the department are non-existent” (FG3, Q32).

The SLPs and integrated development plans must consider their implications at closure. A respondent from a mining company explained the tension between closure costs and community requirements. On the environmental side, the mining company quantifies closure liabilities in financial terms, reviews liabilities quarterly and submits an annual report to the DMRE. On the social side, there are SLPs. However, implementing SLPs and applying the same rigour as the company does for the closure liabilities have been challenging. A mining company employee said that the cost of dealing with the environmental and social aspects was too high.

Social concerns are often passed on to municipalities, which are not in position to handle them. There was a cry from participants in the focus groups for support from the government. They requested the establishment of an entity that looks after their needs and ensures their involvement in mine closure processes. Poverty levels are escalating, and people expect the government to help.

The above sentiments portray a sense of frustration and despondency. Closure ends the dependencies created by the mines in terms of accommodation, social infrastructure, water, and everything supplied by the mine. A respondent said, “Once you close shop, people’s lives are disrupted. If those dependencies are not managed properly, the problem is exacerbated” (R11, Q6). These dependencies have been poorly managed, thereby distressing communities. Focus group respondents expressed that mining companies must, during the closure process, take responsibility for the people they hired.

6.4.2 Stakeholder engagement

Mine closure guidelines for mining companies emphasise the importance of integrated mine closure planning and implementation (ICMM, 2019). Collaboration between mining companies, communities and the government is important. However, this level of collaboration is often absent. The closure process requires government involvement and guidance. It should buffer communities against mining company abuse.

Respondents reiterated an outcry from communities for the government, as the regulator, to provide leadership and ensure meaningful stakeholder engagement. A respondent emphasised the importance of continuous involvement and cooperation between mining companies and communities, from pre-mining to post mining. Getting communities involved is the responsibility of ‘sophisticated’ people, who know closure processes and they should guide communities accordingly (R7, Q13). Several factors hamper stakeholder involvement.

Existing power imbalances remain a problem. Standing up to mining companies comes at a price. One respondent said that “mining companies have different ways of advancing their interests, often to the detriment of the communities” (R7, Q14). This is difficult during closure because of the absence of trust, and if the government is also absent, the problem is even bigger.

This feedback highlighted inadequate stakeholder engagements. There needs to be constructive collaboration between the government and communities, or their representatives; there seems to be a disconnection due to diverging interests. According to R7, CSOs can facilitate transparency and pressure government officials and companies to ensure information is available to interested parties. Secondly, CSOs can create awareness so that communities understand what is happening and what to expect in the future. Thirdly, CSOs can create leadership structures and amplify community voices (R7, Q25–27).

A mining company representative explained that the mine collaborates with communities when it develops stakeholder engagement plans. However, the respondent was concerned that political and government leaders interfere and distort engagement processes. The respondent expressed this concern: “People on the ground indicate what they want, but priorities change as you move up the rank to the local authority level, and whatever communities say can easily be stripped out” (R11, Q22). Stakeholder engagement approaches are critical. Factors causing problems include a community being too politicised, a lack of proper consultation with affected people, struggles to get all stakeholders to ratify SLPs, dishonesty about what is possible, and failing to manage community expectations.

One respondent was worried that the government does not engage with communities meaningfully. Also, there needs to be more communication between the municipalities and the mines on the closure plans. NIE acknowledges bounded rationality and emphasises the importance of information in reducing uncertainties and transaction costs, protecting property rights, and enabling credible exchanges. Ideally, information about decline and closure should

be readily available to all stakeholders, for informed decision-making. Also, closure plans must align with the spatial development framework and municipal economic strategies, so mines and municipalities can work together. However, more often than not, information asymmetry exacerbates power imbalances, creates mistrust and hinders collaboration.

6.4.3 Social and labour plans

Chapter 4 defined SLPs as mining companies' commitment to contributing to the well-being of mine employees, labour-sending areas and host communities. SLPs represent a form of social licence. Owen and Kemp (2013, p. 32) argue that the social licence concept is impractical and implicitly leads to undesirable consequences: "As a concept, it signifies what the industry needs to pursue its agenda of land access for resource extraction". Also, community resistance or its refusal to accept projects is seen as a breach of the social contract, while the absence of contestation from the communities may be perceived as a silent approval. Owen and Kemp (2013) refer to the complexities of communities' responses, which are influenced by the local context, social norms and power dynamics.

The notion of a 'social licence' and whether the commitment is enforceable is often questioned. Several respondents noted that mining companies get SLPs approved as part of their operating licenses; however, when the mines face financial difficulties (and possible mine closure), SLPs are the first budget item that is cut. Abrupt mine closures before mining companies fulfil their commitments, including environmental and social obligations are common. Focus group respondents described SLPs as non-existent, weak, ineffective, unsustainable and benefiting only a few. Table 6.1 summarises respondents' views on the SLP concept, its conceptualisation and implementation, its impact on communities and the implications of mine closure and downscaling.

Table 6.1: Responses regarding SLPs

SLP concept and inception	SLP implementation	SLP impacts on communities	Implications of mine closure and Downscaling
<ul style="list-style-type: none"> • Usually politically motivated and do not address communities’ concerns (R8, Q23) • Ought to have a long-term perspective (R10, Q29) • Guidelines outdated [2010 document] (DMR, 2010) • No criteria for identifying a host community; mines use their definitions (R11, Q14) • Linking the approval of the SLPs to IDP poses a severe challenge. IDPs usually poorly constructed/implemented, especially in small municipalities (R11, Q17) • Mostly cut-and-paste documents, sometimes from other countries (R6, Q47) • Extensive environmental and social scanning is required to inform SLPs (R11, Q44) • The power dynamics of negotiating SLPs skewed in favour of mining companies (R7, Q28) • Sometimes, SLP funding displaces government spending (R5, Q41). • Infrastructure projects preferred because of fewer hassles (R2, Q39) 	<ul style="list-style-type: none"> • Consultants work cheaply and can be swayed (R11, Q44) • Consultants get paid, but implementation is slow. Corruption is an issue (R6, Q47) • Political interference is a big concern (R11, Q22) • Mining companies do the bare minimum; they do not check where the money goes (R10, Q13, Q29) • Communities and governments cannot monitor implementation (R7, Q28) • Mining companies prefer infrastructure projects because they are easier to manage (R3, Q39) • Critical to avoid bureaucracy as it impedes progress (R10, Q28) • Mining companies should avoid creating dependencies and assist communities in establishing strategic partnerships for sustainability purposes (R3, Q34) • SLP funds ought to “plug the holes left by the IDPs” but not to cover municipal mandates. Schools and clinics are built but there is no income or sustainable livelihoods to enjoy those facilities (R11, Q19) 	<ul style="list-style-type: none"> • Communities and employees are not prepared for possible mine closure and its impact on SLPs (R4, Q7) • Successful project easily collapse at closure if the proper governance is not in place (R10, Q13) • SLPs’ funds are insufficient to prevent community distress at closure (R11, Q5) • Linking SLPs to IDPs constrains the scope and implementation of SLPs. IDPs are five-year documents (R3, Q58) 	<ul style="list-style-type: none"> • Insufficient funds set aside for SLPs; commitments/objectives not met. • SLP budgets are cut with downscaling (R1, Q39) • SLPs are never enforced (R7, Q49) • Sustainable projects are often lacking; often projects collapse soon after closure (R5, Q41-43) • The few surviving SLPs are challenged to expand (R1, Q40) • Not enough is invested in skilling people to start/run projects (R3, Q40) • Infrastructure SLPs remain after closure, but often, communities and municipalities lack resources for maintenance and ensuring quality services (R3, Q40) • Community distress becomes inevitable at closure (R11. Q1)

Note: IDP = integrated development plan

The views summarised in Table 6.1 illustrate communities' low expectations of SLPs and the need for greater trust in the ability of SLPs to achieve the intended objectives. The issues raised in Table 6.1 are explained in the following subsections, and the relationship with the drivers of collaboration is examined.

Respondents were sceptical about SLPs and how projects are introduced to communities. There was a belief that SLP projects are politically motivated and not community-based. SLPs are often viewed as cut-and-paste projects imported from elsewhere, and often unsuitable for the local context. Infrastructure projects are often preferred and deemed easier to implement, but are displacing government funding. Also, SLPs often neglect the community's long-term prospects. The lack of a long-term vision is attributed to the mandatory link with integrated development plans, political agendas and leadership interests. Integrated development plans themselves are described as poorly constructed and unable to deliver community development. SLP guidelines (the 2010 document) are outdated, with a host community not clearly defined, which allows mining companies to develop their own devices. The need for thorough scoping exercises before establishing SLPs was emphasised.

Respondents pointed out that implementing SLPs leaves much to be desired. The progress on SLPs is usually slow and predominantly implemented by consultants, who can be easily swayed. Bureaucracy and insufficient funds exacerbate the problems. Corruption and political interference result in projects outside of community priorities. Mining companies are also believed to lack interest, resulting in inappropriate budgets. Neither government nor communities seem to be able to monitor the implementation of the SLPs. There was an appeal for mining companies to avoid creating dependencies and to rather focus on empowering communities to build partnerships and ensure life beyond mining.

Neither communities nor mine employees are prepared for downscaling, closure, and consequences. A few SLPs are successful, but inadequate to prevent the consequences of mine closure. Due to poor governance, SLPs that are deemed successful will likely collapse after mine closure. Furthermore, funds for SLPs are often insufficient to achieve the desired goals and are bound to decrease towards the end of the mine life cycle. Linking SLPs to integrated development plans is a deterrent to any chances of SLPs meaningfully contributing to local economic sustainability, given that integrated development plans are often five-year documents.

Since mining projects are long-term commitments, SLPs should consider the hosting communities' long-term socioeconomic prospects.

Considering the issues outlined above, SLPs are bound to perform poorly. SLP funds are often insufficient, with the situation exacerbated by downscaling, which limits what the SLP projects can achieve. Worse still, SLPs are never enforced. Strategic partnerships often fail to carry the projects forward when the mines close. The few SLPs that are considered successful find it difficult to expand and usually collapse due to weak governance. Greater investment is needed in skilled people to carry the projects forward or start new income-generating projects. When SLPs do manifest in infrastructure projects, such as schools, clinics, and recreation facilities, communities and local municipalities often find themselves unable to maintain the structures, staff, and quality of services when the mines close. More often than not, downscaling and closure are associated with community distress.

When guiding principles that were set to support and benefit all parties involved in a process are ignored or weakened, the relationship suffers. Mistrust grows, and hopes that the relationship will make positive gains fade. The responses from the West Rand show that SLP processes often fail to remain focused on the objectives that were set (principled engagement), as stakeholders often work without a common motivation, and use their resources to influence the agenda. As described in Chapter 4, diverse stakeholder interests, values, and abilities to influence closure processes create complexities for mine closure. The conditions are not conducive to productive collaboration. Inevitably, the problems facing SLPs are exacerbated by downscaling and mine closure. The dependencies created by mining could be managed better, and this ineffectiveness leads to many forms of community distress. The impact of inadequate collaboration drivers is illustrated in Table 6.2.

Table 6.2: Collaboration drivers and mine closure

Collaboration drivers	Implications of inadequate collaboration drivers	Implications for closure
Principled engagement	Lack of clear criteria for identifying a host community	Guidelines not oriented towards closure
Shared motivation	Power dynamics favour mining companies; therefore, closure activities do not consider community priorities.	SLP's intended objectives cannot be achieved at closure; ghost towns and community distress become inevitable
	Mining companies choose infrastructure projects to avoid hassles, which leads to SLP funding displacing government funding	Communities end up with unsustainable infrastructure after closure, leading to riots, vandalism, and ghost towns
	Corruption, bureaucracy and political interference work against community interests	SLP objectives are not met at closure; negative social consequences are exacerbated
Capacity for joint action	Lack of capacity to monitor SLP implementation	SLPs are likely to fail by the time of closure
	Linking SLPs to weak IDPs	Failure of SLPs is unavoidable at closure, causing communities despair and distress

Note: IDP = integrated development plan

Table 6.2 indicates the connection between collaboration drivers and mine closure. For example, with insufficient guidelines (principled engagement), mine closure activities are adversely affected. In the absence of common motivation, SLPs are drawn in different directions and general progress is impeded. The situation gets worse as closure approaches. In the same way, corruption, bureaucracy, political interference, and the lack of capacity to monitor SLPs work against the chances of SLPs succeeding. Although mining companies often prefer infrastructure projects, these projects are not sustainable when the mines close. Linking SLPs to weak integrated development plans creates additional challenges.

SLP commitments are usually unmet, making the notion of benefits based on a 'social licence' a pipe dream. One respondent said that mine closure is an undesirable topic that communities do not want to entertain, because it often translates into the communities shutting down. Hence, mine closure requires broader participation. Owen and Kemp (2013) advocate a shift from 'social license' to listening and responding to community priorities. The proposed approach requires inclusive dialogues and effective collaboration among the stakeholders. NIE assumes that institutions strive for efficiency and will keep changing from one institutional equilibrium to another. Therefore, getting the institutional environment (formal rules of the game) right

(Williamson, 2000). Formal rules ought to protect the interests of the local communities, ensure the redistribution of resources and protect the natural environment (Behera & Engel, 2006).

Thus, participatory processes are critical for effective socioeconomic development. NIE scholars observe that the effectiveness of the rules will depend on the strengths and weaknesses of the communities (interest groups) and the government. NIE argues that a strong state that can reach the local levels and enable participatory processes is necessary. There is a need to pursue strategies to empower communities to understand and critically analyse the status quo, including questioning power structures and finding alternatives, thereby enabling them to drive their development processes (Wegerich, 2001). Therefore, if the socioeconomic conditions of the local communities are to improve, the collaboration drivers must be adequate.

6.4.4 Frustrations related to working on mine closure processes

Respondents referred to several frustrations in the closure processes. A municipal official noted that municipalities cause some of the frustrations. Corruption, nepotism and shortsightedness are major influences on municipal processes. Politicians are generally not interested in long-term projects to build local sustainability. A respondent observed that politicians want quick solutions so that they can get re-elected (R5, Q57). This perception is attributed to interests being aligned with the political term of office and integrated development plans, which inhibit long-term thinking.

Strategic thinking is seldom involved in developing SLPs. For example, many SLP projects are small-scale projects. Many respondents said the mining company often rejects alternative projects (R1, Q17). Furthermore, mining companies prefer infrastructure projects, because they are deemed easier to manage. Respondents found it frustrating when mining companies resorted to SLPs that involve building something quickly, such as classrooms and other easy construction projects (R5, Q53).

The absence of participation and consultation was also highlighted. Mining companies dictate terms and do not consult communities, but decide what to do on their own. Respondents mentioned examples of senseless training that does not consider what participants gain. The frustration stems from knowing that the mining companies' preferences precede the communities' interests.

Mine closure often leads to land invasions, resulting in municipalities having to guard against illegal land occupations. Increased job losses associated with downscaling and mine closure increase community desperation and may push some people to occupy land illegally to erect dwellings or establish settlements.

Mines tend to tell stakeholders that they (stakeholders) do not understand the business dynamics. This approach frustrated several research participants. Reference was made to what is referred to as ‘clever accounting’ and ‘sophisticated language’, which sometimes enables mining companies to spend two years without declaring a profit. Manipulation was also cited in relation to the complex corporate structures of most mining companies, which often obfuscate their closure responsibilities and liabilities. Also, most mining companies own different mines, which is cleverly used in financial declarations. One respondent said, “It is frustrating to see all these games played” (R7, Q17).

These frustrations expose the mistrust and power imbalances that make failure inevitable in mine closure processes. The paradigm shift from CSR was meant to yield more community benefits. Communities have a minimal say in the SLP processes. The rule change involves that the responsibilities not fulfilled by mining companies become government liabilities, and communities ultimately carry the burden. Also, leadership and governance of closure processes could be stronger. Stakeholders blame each other, and sometimes communities feel helpless about avoiding or addressing the problems. A respondent noticed that

when you talk to the mining companies, they blame the government. When you talk to the communities, they blame the government and mining companies. This kind of blaming is the same all over Africa. As I see, the mining companies and the government work together (R6, Q13).

The rule change from CSR to SLPs created new problems. Like elsewhere in government initiatives in South Africa, implementing collaborative governance remains challenging. Communities were unable to see the benefits. Questions were raised about SLPs as a ‘social licence’ and whether they are enforceable. There is a need to improve relationships between a mining company and its surrounding communities. Through the SLPs, mining companies are expected to contribute to the socioeconomic development of the hosting and sending communities and reduce the negative impacts of closure, which rarely happen. Although the SLP guidelines provide some direction for mine closure, they were designed to operate in stable or

growing mining environments. A reconsideration of an appropriate social responsibility concept for poor and declining environments is needed.

6.5 RULE CHANGE 3: MINE CLOSURE REGULATIONS ARE IGNORED

South Africa has a range of mine closure policies and legislation that are intended to promote social and community development. However, researchers report that the system requires revision (Fourie & Brent, 2008; Mpanza et al., 2020; Watson & Olalde, 2019). According to Watson and Olalde (2019, p. 1), the mine closure system in South Africa is “complex and unwieldy” and ineffective, and no large mining company has, to date, been granted a closure certificate to date. Also, South Africa’s mine closure regulation does not apply to old or dissolved mines, which mining companies simply abandoned. Consequently, the government is liable for cleaning up the mess.

The One Environmental System was introduced in 2015 to harmonise the MPRDA, National Water Act and NEMA and provide for cooperative governance. The One Environmental System raised hopes that relevant departments would be empowered to execute their mandates (Humby, 2015). However, departments still operate in silos. Marais (2023) observes the omission of social aspects from the MPRDA, which assumes environmental aspects cover them. Closure complexities result from the government’s conflicting roles: enforcing compliance with laws, promoting the mining industry's growth, and protecting human rights (Mpanza et al., 2020). The government fails to strike this critical balance. In the following subsections I will outline respondents’ views regarding weaknesses in mine closure legislation and enforcement.

6.5.1 Mine closure regulations

Despite the introduction of new rules in 1994, irresponsible closure practices continue. NIE scholars attribute the failure of governments to implement effective development interventions to weak institutions. Governments must enforce contracts, protect property rights, stability, and peace, and ensure that parliament and the judiciary operate independently (Shirley, 2005). The inability to apply new mine closure rules to old mines has created a new informal rule of criminal activity, as discussed in the previous sections. The crime statistics confirm this perception (Marais et al., 2022). As a result, limited land rehabilitation hampers economic progress and allows criminal activities to flourish. One participant summarised this by saying,

They have left us with these useless buildings, which have become cornerstones for criminals. They leave us with a high crime rate. (FG3, Q25)

A respondent observed that, while legislation adequately addresses environmental and safety issues, the socioeconomic issues emanating from mine closure are barely acknowledged. According to this respondent, social issues require a specific reference in the legislation. As a result, there is little recognition of the financial provisions and quantifications “since nobody is saying what should be done ... or even saying do it” (R3, Q49). A mining company employee estimated that 70% of their work focuses on environmental issues, and less than 30% goes to social aspects. Also, an understanding of social issues in mining companies is lacking. Respondents acknowledged that, unlike environmental impacts, which are easier to monitor, quantify, assess, and communicate, problems from social processes are complex and harder to manage, and the negative consequences may take a long time to manifest, let alone rectify. A respondent noted that:

You can check all the MPRDA sections and wonder what we are supposed to do for social closure... there is a flaw, but it is not all doom and gloom. They can still ensure that either regulation or something gets put together to guide mining houses and even the DMRE to do what they should do regarding the closure. So, the government needs to find a way of talking to relevant stakeholders, just like they did with the Mining Charter [process]. (R3, Q17 - 18)

Also acknowledged is that social issues are new for a technical department such as the DMRE. Hence, the DMRE must build its capacity to enforce the legislation. The assumption that social issues are embedded in environmental regulations needs to be spelled out in the regulations. Respondents often said that, when people see ‘environment’ in real life, they think of the natural environment, not social issues. South Africa’s history and the complexities of closures exacerbate the situation. Such conditions create quite militant communities, and their views are compounded by low levels of education, violence, domestic abuse, and poverty. Ideally, communities need high discipline and structured bodies to interact successfully with mining companies and government.

A representative stated that their mines were expected to stay in operation for many years, explaining that social closure issues were low on their priority list. The representative emphasised that it was challenging to start thinking about how things would look when the mine closed. Unlike social costs, they focused more on environmental closure, which is easily costed. Currently, they want to reduce their environmental liability. The representative added that the

West Rand District Municipality should drive closure processes requiring clear guidelines. Now, West Rand District Municipality looks only at the integrated development plans of municipalities and their five-year plans and not enough attention is given to closure processes. Lack of leadership of closure processes at a municipal level is a concern. Respondents concur that legislation should prioritise social impacts.

There is a need for clear criteria for the social aspects of mine closure. The absence of hard rules concerning social aspects remains a problem. Mines remain open while monitoring future commodity price changes. This suspension of activities allows mining companies to start mining again or start reprocessing tailings when it becomes economically viable. A respondent said:

Companies do not close because of [the possibility of] future economic benefits, and sometimes because they have inherited or created liabilities. Often, they do not have the resources to do environmental rehabilitation. There is no incentive for them to close (R10, Q5).

Some respondents expressed a need for care and maintenance limits and that a mines should be handed over to the community if mines breach the time limits. Participants at the Bench Marks Foundation expressed similar concerns. The lack of financial provision for the environmental rehabilitation of a mine during the business rescue process was also a concern. Also, there is no standardisation of how to relax the environmental obligation of the mine during the business rescue stage (Bench Marks Conference, 2022). Another view was that mine closure should be regulated under the Companies Act instead of the MPRDA, which is weaker.

If we have not harmonised the Companies Act with the MPRDA, we will continue to have these problems because when individuals apply for licenses, they use the MPRDA. However, when confronted with financial challenges, they opt for the Companies Act, which allows them to use business rescue practitioners [BRP]. The BRP defeat the principle of ‘use it or lose it.’ Because in this state, an individual who has never been granted a right will be found using a right that the DMRE did not grant. (Bench Marks Conference, 2022)

The DMRE acknowledges the regulation gaps and acknowledges the interconnectedness of mines in a region, which have cumulative environmental impacts. The DMRE embarked on a process to develop a national mine closure strategy to ensure sustainable mine closures. The strategy aims to “align individual and regional mine closure plans” (DMRE, 2021).

6.5.2 Strengthening enforcement

Although mine closure regulations exist in South Africa, the government seldom enforces them – an issue emphasised by respondents. Discussions in the three focus groups showed an awareness of the mine closure regulation and its objectives. Participants felt confident that the mine closure regulation was designed to protect mine workers and the mine-hosting communities.

South Africa subscribes to the ‘polluter must pay’ law (Section 28 of the NEMA), but enforcement is slow. Like other developing countries, the South African government lacks the capacity and competence to implement the legislation (Watson & Olalde, 2019). Taxpayers end up paying for the environmental harm caused by mining, and ongoing downscaling and closure exacerbate the situation. Several respondents observed that the absence of enforcement defeats the purpose of having regulation.

Respondents often said there may be good policies, but only some practical examples. The need for effective law enforcement was emphasised:

When the state does not work, when officials are apathetic or where there is corruption and inaptitude of gross incompetence, the best of laws will not work. In that context, policies are useless. When state institutions suppress the voice of communities, criminalising those protesting for their rights, when the state colludes with the corporate sector to litigate against activists, the best laws will hardly work. (Bench Marks Conference, 2022)

Although the government is weak and compromised, one respondent cautioned that mining is a business of interest. Each stakeholder wants to maximise its interests, and no common motivation exists between stakeholders. The government’s failure to implement even the most basic functions in the closure regulation was echoed by participants of the Bench Marks Conference, attributed to the lack of capacity at the DMRE and the exclusion of mine-hosting communities from closure processes (Bench Marks Conference, 2022). The regulator was blamed for insufficient laws, which created the current situation. Instead of closing, mining companies simply walk away. “It is an old trick. Also, the law should say that selling an uneconomically viable mine is illegal” (R6, Q26).

The need to enhance state capacity to improve mine closure legislation enforcement mechanisms was emphasised. Participants indicated that, although good regulation is essential, much effort needs to go into ensuring that state departments/agencies (including Chapter 9 institutions)

employ ethical individuals with the right skills. Employment of the right people should be enabled to ensure that communities benefit from the existing legislative framework (Bench Marks Conference, 2022). NIE highlights the critical role of the government in developing and enforcing formal rules to ensure those who are supposed to benefit from the set arrangements and achieve the desired objectives, do. Ménard (2014) highlights the importance of meso-institutions (refer to Chapter 2), which are devices and mechanisms used to delineate rules, provide guidelines for implementing and enforcing regulation, specify incentives for compliance and consequences for noncompliance, and propose rule changes where necessary. Meso-institutions ought to function, as their failure disrupts economic activities and leads to social discontent or conflicts (Ménard, 2018). Thus, government officials should be empowered appropriately to enforce mine closure regulations.

6.6 RULE CHANGE 4: COUNTERING DECLINE AND CLOSURE (ALTERNATIVE ECONOMIC IDEAS)

Chapter 4 analysed the notion of shrinking. The main point from the literature review is that planning for decline is often required. Chapter 5 provided an overview of the magnitude of shrinkage in the West Rand. Although the rules for growth are clear, the rules governing shrinkage require attention. The first part of this section overviews the strategies developed by the government to counteract the negative consequences of mine decline and closure in the West Rand. The second part reflects respondents' and focus groups' views on what should be happening to curb the deterioration and ensure effective mine closure.

6.6.1 West Rand's responses to revitalise the local economy

As illustrated in Chapter 5, an overdependency on the mining sector means that the West Rand economy has been vulnerable to risks associated with mine decline and closure (Merafong City Local Municipality, 2020; West Rand District Municipality, 2021). The West Rand District Municipality (2021) acknowledges that growing West Rand economy to what it was in the past requires more attention. The slow progress in implementing development plans results from poor management and coordination, changes in political leadership, and the need for more resources, internal capabilities, and commitment to the process. In addition to mine decline, other challenges facing the West Rand are highlighted by the One Plan Model and include a notable decline in the contribution of the tourism and agricultural sectors, despite their potential to

contribute. Also, the health sector is overburdened and there is room for improvement in the coordination, planning, budgeting, and implementation processes (West Rand District Municipality, 2021).

West Rand development strategies align with the Gauteng province corridor development approach, which has identified the West Rand Development Corridor for initiatives such as the West Rand Economic and Industrial Plan. The province aims to revitalise the West Rand economy through reindustrialisation, to stimulate growth and job creation. The West Rand District Municipality One Plan Model (West Rand District Municipality, 2021) emphasises attracting various investments along identified activity nodes. The model highlights the need to “address underlying systemic challenges and build social, economic and environmental resilience as the future becomes more uncertain, unpredictable and challenging” (West Rand District Municipality, 2021, p. 29).

The government has embarked on bold, large-scale infrastructure projects to diversify the local economy and counteract the negative impacts of the decline in mining. Strategies refer to game-changing projects, mega projects for human settlements, proposed corridor projects and other catalytic projects (West Rand District Municipality, 2021). Initiatives include boosting small-scale farming into agro-processing, green energy, advanced manufacturing, and investments in roads, water infrastructure, sanitation, electrical infrastructure, and bulk digital systems. For example, the Bokamoso Ba Rona initiative is an ambitious, large-scale, flagship agro-processing and distribution project that has been established to support commercial, emerging, and small-scale farmers and the community (BBR, 2019; Creamer, 2019).

Other priorities in West Rand District Municipality’s plans are improving service delivery, revitalising the township economy, restoring good governance, and strengthening collaborations across the district despite political differences. Improving the general safety of residents of the West Rand, upgrading the disaster and emergency services, and strengthening the local economy are urgent actions (Masuabi, 2022; Riba, 2022). Rehabilitating old mining land for residential and commercial initiatives is high on the agenda, as is extracting minerals from existing mine dumps, where possible.

Respondents representing the government expressed an urgent need to find solutions, leaning towards growth and expansion strategies, understandably prioritising efforts for job creation and revitalising the local economy. The focus is on expanding its industries, tourism, and agriculture. However, Mpanza et al. (2020) observe from experiences elsewhere that it is unlikely that

agricultural activities disrupted by mining will recuperate and regain their pre-mining potential. The strategies developed a focus on countering decline and closure with growth and expansion, and not enough consideration is given to the rules and value of decline planning.

6.6.2 Views on an alternative economy post-mining

The literature shows a positive correlation between the sustainability of mining cities and efforts to rehabilitate the environment (Marais et al., 2022). Also, mining cities are advised to anticipate and plan for decline, despite debilitating conditions. The environmental damage and displaced poor communities around the mine dumps after closure point to the need to create a new, productive landscape if the local economy is to be revitalised (Spay, 2014). The West Rand faces an enormous challenge to identify and implement appropriate strategies. However, perceptions of the urgency of the problem and the pace at which turnaround strategies unfold differ.

Focus group participants were frustrated that nothing was happening, while government respondents cited several initiatives seeking to address the challenges of decline through partnerships with mining companies. Respondents indicated that prioritising social aspects will require technical teams to work closely with social performance teams. Also, diversifying economies around a mine ought to happen while the mine is still generating profits, so that post-mine closure, the communities, towns, and villages can exist without the mine (R10, Q12). Future repurposing of mine infrastructure and generation of alternative energy for the communities was suggested. Good planning is necessary to keep all matters, including population growth, incomes, and infrastructure, in check (R10, Q12), which poses a huge challenge in South Africa.

The focus groups appealed for mining companies to make their land available for other activities. Participants from a mining village stressed that mines were closing and there was no other source of livelihood.

We cannot invest on the land unless the mine owner permits us. So, mines should allow investors to come in and invest. The government must force mines to provide or lease their land in the interest of the hosting communities. (FG3, Q77)

6.7 CONCLUSION

The main consequences of failed mine closure rules are environmental degradation, the lack of rehabilitation that hinders new economic activities, and unlawful access to these mines, which fosters illegal mining (see Chapter 4). This chapter examined the institutional responses (formal and informal) to the mining decline in the West Rand, as described in Chapter 5. The oppressive apartheid laws favoured large mining companies, which thrived, but caused damage to people and the environment. The government had limited rules for closing mines, and mines had no obligation to close mines properly.

Postapartheid legislation focuses on addressing past injustices and transforming the mining sector, raising hopes for workers and host communities. Instituting post-apartheid laws has been difficult, as it often entails powerful forces working behind the scenes to fortify the status quo (Chapter 2). The changing rules before and after 1991, as perceived by the key stakeholders, the consequences for the local economy, and links to the NIE theory, shrinkage and mine closure concepts are summarised in Table 6.3.

Table 6.3: Changing rules and consequences

Rules up to 1991	Main consequences	Rules after 1991	Main consequences	Links to theory
Government				
<ul style="list-style-type: none"> • Apartheid rules • Supported the mining industry to ensure development and make cheap labour available • Subsidised the mining industry to ensure foreign exchange earnings. • No mine closure regulations • Imposed taxes on men and households to drive people from rural to mining areas • Recruited Black workers from other parts of South Africa and neighbouring countries • Allowed trade unions to organise Black mine workers (1982). 	<ul style="list-style-type: none"> ➤ Formalised migrant labour system, the influx of Black workers to mining areas ➤ Increasing inequality, environmental degradation, anger, conflict and mistrust between government and communities ➤ Weak institutions, weak government ➤ Lack of rehabilitation that inhibited economic activities ➤ Abandoned mines increased opportunities for illegal mining 	<ul style="list-style-type: none"> • Repeal of apartheid laws and replacing them with freedom, equality, and sustainable mining laws • Formulate and enact mine closure regulation. Emphasise environmental aspects • Appoint the government as the custodian of all minerals • Create opportunities for the previously disadvantaged (BBBEEE, mine charter, affirmative action) • Promote cooperative governance and local development governance • Promote growth to reverse economic decline • Form strategic partnerships • Diversify the local economy. • Rehabilitate abandoned mines. • Government systems have become weaker due to lack of capacity, and corruption • From mining and CSR to SLP • Impacts of mine closure not sufficiently considered • Strategies to revitalise the economy to counter impacts of decline and closure 	<ul style="list-style-type: none"> ➤ Mistrust and power imbalance increased ➤ Closure not anticipated, plans not prioritised, and rules not enforced ➤ Inability to control the mining industry ➤ Communities excluded from closure processes ➤ Increase in illegal mining, crime, conflict, social unrest, and land invasions ➤ High transaction costs ➤ Dwindling tax revenue and weakening municipal governance ➤ Failure of integrated planning and SLPs ➤ Distressed local communities ➤ Hopes shattered ➤ Social consequences are poorly attended to 	<ul style="list-style-type: none"> ❖ The absence of rules increases uncertainty ❖ Rules are not necessarily set for social good but reflect the interests of the powerful ❖ Social norms are hard to change (it could take 100 years or more) ❖ Weak and missing institutions are the root cause of poverty and underdevelopment ❖ A rule must be enforceable to prevail as an institution ❖ Rule changes may have unintended consequences. Mining decline reflects economic change ❖ Mining decline disrupts and shrinks the local economy. ❖ Pro-growth strategies are not appropriate to address the impacts of shrinkage

Rules up to 1991	Main consequences	Rules after 1991	Main consequences	Links to theory
Mining companies				
<ul style="list-style-type: none"> • Ensured a constant labour force to avoid interruptions in production • Influenced government policies and practices • Ensured formulation and implementation of strict segregation laws • Built and controlled mining towns and villages • Controlled Black workers' movement and access to socio-economic opportunities. Poor living and work conditions. • Mobilised to end apartheid and ensure continued profitability (since the demise of apartheid was inevitable, considered alternatives) • Abandoned mines when they were no longer profitable 	<ul style="list-style-type: none"> ➤ Institutionalised exploitation of labour ➤ Disempowered, disgruntled labour force ➤ A culture of mistrust and violence in society ➤ Dependencies on mines created ➤ Increasing opportunities for illegal mining 	<ul style="list-style-type: none"> • Substantial downscaling as profitability comes under pressure • Organise to destroy apartheid and influence the policy of the democratic government • Implement SLPs linked to integrated development plans • Transformation of the mining industry • Provide better accommodation: single-person or family units or option for a living-out allowance • Sell, close, abandon mines, or apply for care and maintenance, or rescue when mines were unprofitable • Invest in the best legal teams 	<ul style="list-style-type: none"> ➤ Increased uncertainties. ➤ Poor stakeholder engagement on mine closure. ➤ Workers favour housing allowance, which increases informal settlements around mines. ➤ Increased job losses, illegal mining, crime and violence ➤ Increased number of businesses closing. ➤ SLPs create new dynamics, additional responsibilities and discontentment, making working with communities harder. ➤ Anger and disappointment in host communities affect mining operations. 	<ul style="list-style-type: none"> ❖ Rules reflect the interest of the powerful in society ❖ Formal and informal rules are interrelated. Polity determines and enforces formal rules ❖ Bounded rationality leads to uncertainty and opportunism. ❖ Formal and informal rules are interrelated ❖ Informal institutions are embedded in beliefs, shape human choices and determine economic activities in a society ❖ Uncertainties increase transaction costs and reduce cooperation and credible commitments
Communities				
<ul style="list-style-type: none"> • Communities excluded from closure processes • Fought segregation and repression • Mines will always be open, provide jobs and support community development • Exerted pressure on government and mining 	<ul style="list-style-type: none"> ➤ Closure not anticipated ➤ Mistrust in government and mining companies ➤ Communities were not participating in mine closure processes ➤ Disempowered, disgruntled communities 	<ul style="list-style-type: none"> • Advocate for new laws to pursue equality, justice, and freedom • Jobs have been lost and people seek alternative livelihood strategies, e.g., illegal mining • Corruption is a way of gaining social and political power and avoiding/influencing rules 	<ul style="list-style-type: none"> ➤ Closure not anticipated ➤ Increasing mistrust ➤ High expectations for a better life, with political freedom and democracy ➤ From high expectations to living with decline ➤ Crime, violence, frustrations, distress, vigilantism, 	<ul style="list-style-type: none"> ❖ Path dependencies: migration to mines continues even though mining is declining ❖ Formal rules may change quickly, but informal rules change slowly ❖ Beliefs and social norms are powerful and deeply rooted ❖ Societal myths matter

Rules up to 1991	Main consequences	Rules after 1991	Main consequences	Links to theory
companies to ensure land rehabilitation and sustainable mining	<ul style="list-style-type: none"> ➤ Civil society mobilised struggles for freedom ➤ Society became more politicised ➤ Closure was not anticipated, perceived as a myth, and not taken seriously 	<ul style="list-style-type: none"> • Communities feel betrayed by the government and abandoned by mining companies • Communities blame political leaders and were increasingly involved in vigilantism and efforts to reverse decay and decline • Communities want to engage in strategic discussions on mine closure to stop corruption and crime 	<p>xenophobic tendencies and a culture of corruption has increased</p> <ul style="list-style-type: none"> ➤ A sense of despair. Feeling betrayed by the government and abandoned by mining companies ➤ Hope for reopening of mines ➤ Opportunism is increasing, and people are taking advantage of the weak systems ➤ Changes in the political landscape /dynamics 	<ul style="list-style-type: none"> ❖ When corruption is prevalent in a society, there will be attempts to frustrate the efforts of honest law enforcers ❖ Bribing corrupt law enforcers can become common in society, creating an institution of bribery ❖ Weak institutions impede economic growth ❖ A rule must be enforceable to prevail as an institution

Note: BBBEEE = Broad-based Black economic empowerment a South African government policy designed to advance economic transformation and enhance the economic participation of Black people (African, Coloured and Indian people who are South African citizens) in the South African economy (South Africa, 2013).

Table 6.3 shows the complex mix of formal and informal institutions that have influenced mine closures in the West Rand. The devastating impacts of mine closure were acknowledged in Chapter 4. Society has changed the rules to improve social efficiency, but, in most cases, expectations have not been met, as reflected in the consequences column. NIE scholars observe that institutions (or the lack of them) are designed to protect the interests of the powerful and not necessarily improve societal behaviour. This chapter showed that economic power resides with the mining industry, as does the *de facto* political power. Also noted is that institutions have determined the direction and pace of economic development and often generate unintended consequences, the impacts of which may be impossible to reverse.

Theoretical underpinnings of NIE (institutional changes) have contributed to explaining the situation in the West Rand, and South Africa in general. The nature of deep mining, mistrust, the lack of transparency on closure, and illegal activities increase uncertainties, create high transaction costs of exchanges and hamper the efficiency of mine closure. The span of changes in the rule of the game confirms the direction of the events in mine closure practice in South Africa. Government roles changed postapartheid and helped highlight the path of institutional changes over the past three decades. The roles of government are found within the formal institution, from the former years of policies to the current administrative system in South Africa. Changes influence the government's impact on the institutional structure, which the government in power determines. South Africa's history of segregation and oppression and the impact on multiculturalism, social norms, beliefs, and communal attitudes have resulted in the complication and complexity witnessed in mine closure.

NIE proponents argue that, for any economy to grow sustainably, institutions must be effective. It is evident from the respondents' views that politics significantly impacts the economy. The economy progresses when the public knows what is happening and can hold their leaders to account. However, when the public is unaware, political rhetoric dominates. Mine closure is complex due to competing agendas (Chapter 4), with each stakeholder aiming to optimise their benefits from mining, as clearly illustrated in the West Rand over the past 30 years. Unfortunately, West Rand communities are weak players in mine closure and cannot hold duty bearers to account or influence processes. This chapter reported on communities' frustrations and emphasised that weak institutions cannot ensure effective mine closure.

At the end of apartheid, communities believed that benefits would come their way. However, despite the numerous formal rules and all the changes that have taken place since 1991, the legacy

of apartheid lingers on. Currently, communities are desperate for change, and hope to transform political structures and government systems to meet their needs. NIE scholars observe that formal institutions could change quickly, but informal institutions change gradually, because of being embedded in norms, customs, values, and beliefs.

The chapter highlighted the importance of rules being enforceable. ‘Good’ rules that are not enforced are no different from rules that do not exist. Both can have the same devastating consequences for society. When corruption becomes a culture of society, it turns off the rule of law and hopes for a better future. Opportunism thrives as institutions weaken. Weak regulations and enforcement mechanisms create weak governments, which impede economic development (Chapter 2). In the West Rand, weak institutions have contributed to the proliferation of illegal mining, violence, and other crimes, and have undermined government efforts for transformation. Communities’ voices indicate a sense of despair and betrayal by the government, which failed to protect their interests. Communities have lost faith in the government’s willingness and ability to address emerging challenges. People also feel abandoned by the mining companies, who have left gaping holes in the ground, polluted the air and water, and distressed communities. Frustrated communities respond violently and, in the ‘game’, the least powerful suffer the consequences. From the communities’ perspective, the future is bleak and life beyond mining is unimaginable.

Unintended consequences of rule changes, which may sometimes be counterproductive, were noted in this chapter. Because mine closure is a complex phenomenon, individuals are likely to act on mistrust and incomplete information, thereby allowing ineffective institutions to persist. Such institutions persist when they are backed by powerful or influential stakeholders who act as gatekeepers to institutional change (Chapter 2). NIE explains that the redistribution of resources and reform of political institutions happen slowly and are both bound to be persistent. In the West Rand, mining companies continue to influence the institutional environment significantly. Local communities continue to bear the brunt of the negative consequences of mine closure, poverty and unemployment.

The chapter also indicated that the drivers for collaboration (i.e., principled engagement, shared motivation, capacity for joint action) are inadequate to foster stakeholder relationships capable of ensuring compliance with mine closure regulations. Also, social consequences have yet to receive the attention they deserve from mining companies and the government. This chapter explained that, in the West Rand, the government has embarked on bold, large projects to diversify the local economy and counteract the negative impacts of the decline of mining.

Chapter 3 explained that shrinking cities find it difficult to develop strategies that are not based on competitiveness and economic growth, and emphasised the importance of planning for decline. The literature indicates that pro-growth strategies cannot address shrinkage problems. Inclusive, bottom-up participatory processes and ethical and empathetic leadership are crucial.

Strategies adopted as tools for restorative justice, such as SLPs, have yet to achieve the intended objectives; this delay is exacerbated by mine downscaling and closure. It is also evident that the SLP concept could be effective in stable or growing mining environments, but not in poor and declining environments, which requires reconsideration of a more appropriate strategy to protect the interests of affected communities. NIE states that a rule must be implementable and enforceable to prevail as an institution. SLPs are described as a form of social licence, but as noted by the respondents, SLPS are not enforceable.

An overview of the stakeholders' responses shows that enacting reasonable regulations matters, as does effective governance and enforcing the rules. NIE theory highlights the importance of effective enforcement mechanisms for cooperation and credible commitments. Chapter 7 will examine how institutional responses to mine decline and closure have shaped settlement patterns in the West Rand. The focus will be on the relationship between mine decline and spatial planning.

CHAPTER 7: INSTITUTIONAL RESPONSES TO MINE CLOSURE: SETTLEMENTS AND DECLINE PLANNING

7.1 INTRODUCTION

Settlements are dynamic systems with ongoing interactions between institutions and organisations (DFFE, 2012). Settlements adapt to changing circumstances depending on their interests and capabilities (Khan, 2018). Thus, settlement patterns provide insight into current economic, political, and social conditions, shed light on past conditions, and illustrate how a community developed over time. In South Africa, apartheid spatial planning policies divided the country along racial lines, thereby creating spatial inequalities. In many cases, forced removals pushed Black people to areas without access to basic infrastructure such as water, electricity and sanitation (Larson, 2019; Pelders & Nelson, 2019; Platzky & Walker, 1985). Poorly located, undesirable and unsustainable settlements emerged and persist today. The conflicting alignment between formal and informal institutions triggers changes in settlements.

Chapter 2 (NIE framework) explains the institutions that underpin the behaviour of economic agents. Informal rules influence formal institutions (rules and regulations) and power relations, determine how resources are exploited and managed, and how communities collectively build mutual trust and influence socioeconomic outcomes. When formal and informal institutions are not in alignment, there is potential for conflict and instability. While formal institutions can change quickly, informal institutions change very slowly. In addition, the spillover effect of socioeconomic circumstances may contribute to shrinking settlements. Chapter 3 explained the shrinking city phenomenon, which manifests as persistent decline in population and economic activities. Urban planners and policymakers are biased towards growth and expansion. To them, shrinkage represents failure and complexities that regulations should address. Chapter 4 analysed the complexities of mine closure (a form of urban shrinking), globally and in South Africa, as well as the regulations governing mine closure and the challenges faced by the different stakeholders. For the necessity of criticality, Chapter 5 examined the magnitude of the problem of mine closure in the West Rand. Chapter 6 investigated rule changes in response to mine closure as reflected by the key stakeholders (communities, mining companies and government), who highlighted the consequences for the local economy.

This chapter will analyse how changing rules have shaped settlements in the West Rand. The first part will explain the settlement patterns that prevailed before 1991. The second part will analyse the rule change of relaxing spatial controls regarding racial restriction, along with the following subrules and their impacts on settlement patterns after 1991. The third part will reflect on strategies for spatial planning, densification, decline planning, and restoration, and will end with a discussion of the potential positive outcomes of mine closure as perceived by stakeholders (see Figure 7.1 for the conceptual framework of this chapter).

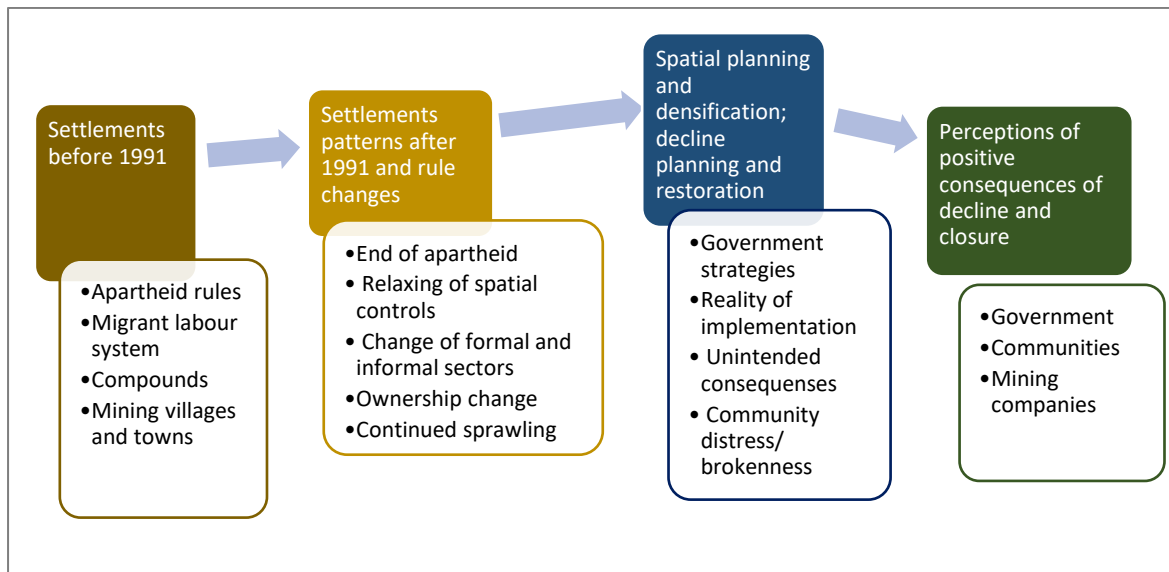


Figure 7.1: Conceptual framework of Chapter 7

7.2 SETTLEMENTS BEFORE 1991

The discovery of gold transformed rural areas into urban centres, leading to the establishment of Johannesburg and mining towns in the West Rand, such as Randfontein, Westonaria, Carletonville and Krugersdorp. The mines attracted capital from abroad and migrant labour from Southern Africa. Urbanisation has led to the establishment of informal settlements as far back as the 1890s (Mujere, 2020). The economy grew on the back of cheap Black labour. Mining became a catalyst for developing other economic activities (CJPME Foundation, 2014). The male migrant labour system became deeply entrenched in Southern Africa's employment practices.

Mining companies created compounds, mining villages (for mineworkers only) and mining-dependent open towns (for mine and other workers) to house their labour force. Under apartheid rules, most Black mineworkers resided in compounds, low-income White workers in mining villages, and higher-paid mineworkers (mainly White) resided in open towns. Companies

commonly provided and managed infrastructure in these settlements. Services provided in company-managed settlements include housing, education, health, electricity, security, water, sanitation and roads (LHR/FIDH, 2017; Winde & Stoch, 2010). This scenario changed in the mid-1980s and early 1990s (Cloete & Marais, 2020). Higher-paid Black mineworkers could access family housing, and the mining villages started desegregating (Van der Watt & Marais, 2019). Mining companies also started to doubt whether they should be involved in non-mining activities, such as housing.

Apartheid planning largely promoted low-density urban sprawl (Mabin & Smit, 1997), despite strict land-use regulations. White workers often resided in company-owned houses (mining villages or open towns), while Black mine workers lived in high-density single-sex compounds (Marais et al., 2020; Marais, 2023) (ironically, single-sex hostels were high-density living). Single-sex hostels and migrant labour were examples of how the apartheid government controlled the settlement of Black people (Bezuidenhout & Buhlungu, 2010; Larson, 2019; Pelders & Nelson, 2019). Despite these strict formal spatial planning rules, informal settlements sprang up on the periphery of cities. Many informal settlements became riddled with social problems, but the apartheid government tolerated them because they provided cheap labour (Larson, 2019).

In the 1970s, there was a global shift towards normalising mining towns, which required mining companies to collaborate with local authorities in planning and managing these towns (Marais, 2023). The aim was to reduce the dominance of mining companies in local economies and settlement management. However, mining companies in South Africa did not embrace the new approach until the early 1990s, when many mining companies began to doubt the viability of company towns (Marais et al., 2020; Van der Watt & Marais, 2019). Initial signs of mine closure also forced mines to think about how to deal with settlements after closure. In practice, they wanted to get rid of long-term liabilities.

Despite these problems, Marais (2023) observes, mining growth leads to place attachment, as people settle and build their livelihoods and social capital in open towns and mining villages. Thus, mining towns depended heavily on mining companies because of their economic and social roles (Marais et al., 2020; Winde & Stoch, 2010, Matebesi, Marais, & Nel, 2024). The life of a mining town became closely linked to that of the mining company and how it managed the social and environmental impacts of decline and closure.

In summary, the combination of mining and apartheid legislation resulted in tightly managed urban (sometimes mine-managed, but also in open towns) spaces with strict land-use regulations, high levels of urban segregation, low density levels (outside of the compounds) and urban spaces dependent on mining. However, some of these rules were broken during this period (for example, informal settlements challenging tight land-use regulations). The loosening of these land-use regulations and the decline of mining would create a new set of formal and informal rules in the West Rand.

7.3 SETTLEMENTS AFTER 1991

The end of apartheid in the early 1990s introduced new rules that countered past racial and spatial inequalities. As indicated in Chapter 6, the new rules coincided with the decline in mining. However, spatial inequalities and justice remain ongoing concerns (Marais & Cloete, 2016; Todes & Turok, 2017). Some policies, such as free housing, exacerbated the problem, and excluded people experiencing poverty from places of economic opportunities and pushed them further to the outskirts of urban areas (Harrison & Todes, 2015; Todes & Turok, 2017).

Reflecting on the past, some respondents reminisced about how beautiful the mining villages and towns used to be. One respondent said that “we got spoiled” (P8, FG3). Below are similar responses from respondents:

Our village was at first under the mines. That is why it was beautiful, and the streets had street names. The high school was nicely built; the mine also contributed to the primary school. The village used to be one of the most wonderful places to live. People used to think this was the suburbs. (FG3, Q29)

The village used to be beautiful. That beauty just fools us into praising them [mining companies]. They built a beautiful high school. We have the most beautiful high school, but we cannot afford to maintain it because they have gone with their gold and their monies. (FG3, Q28)

In alignment with the findings reported in Chapter 6, these respondents have happy memories of the past. In this case, they remembered the beautiful suburbs and schools and how wonderful these facilities were. However, the second respondent realised the problem of maintaining them, which the mines had done before closure, but no longer.

There were also alternative views. For one respondent, mining companies’ infrastructure reduced their taxable income: "So, they built villages or part of villages all over the show. They created

nice villages but out in the sticks” (R9, Q1). The location of the houses created urban sprawl. Furthermore, mines provided transport, making movement in the neighbourhood easy. To some degree, this respondent acknowledges the superficial problem – mines were in control, the provided houses for their tax purposes and did not bother about location (workers having to live “out in the sticks”). This also suggests that the mines did not think about the purpose of infrastructure once the mines closed.

Chapter 6 explained how communities’ expectations of a better life switched from hope to despair. The decline is reflected in the changing settlement patterns. The main rule change was relaxing spatial controls (Harrison & Todes, 2015). There were also attempts made by government to emphasise homeownership and create higher densities. The remainder of the chapter will examine how relaxing spatial controls (and related subrules, such as more freedom to migrate), interactions with homeownership, the need for desegregation and the quest for higher densities (which proved difficult to implement) influenced settlement patterns during mine decline in the West Rand.

7.3.1 Relaxing spatial control regulations

The postapartheid government introduced numerous laws, policies and programmes to change apartheid and colonial spatial patterns. Differentiating between the consequences of relaxing controls, or what is referred to as ‘loosening’, and the impacts of policies designed to achieve societal transformation are challenging. The demise of apartheid laws (for example, the repeal of the Group Areas Act) relaxed spatial controls. The new rules countered historical inequalities and sought to build a democratic, non-racial, non-sexist society, and to improve the living conditions of poor people (Harrison & Todes, 2015). Harrison and Todes (2015) argue that postapartheid policies have not purposively sought to address segregation problems or promote urbanisation (including densification). Table 7.1 shows postapartheid policies and how they intended to change the settlement landscape.

Table 7.1: Key concepts of postapartheid policies on human settlements

Policies and programmes	Key concepts
White Paper on Housing (1994)	<ul style="list-style-type: none"> • Establish viable socially and economically integrated communities in areas that provide convenient access to economic opportunities, health, educational and social amenities. • All South African people to have access, on a progressive basis, to: <ul style="list-style-type: none"> ○ a permanent residential structure with secure tenure, ensuring privacy and providing adequate protection against the elements; and ○ potable water, adequate sanitary facilities, waste disposal, and domestic electricity supply.
Development Facilitation Act 1995	<ul style="list-style-type: none"> • Facilitate and speed up the implementation of reconstruction and development programmes and projects about land, laying down general principles governing land development throughout the Republic. • Provide for establishing a Development and Planning Commission to advise the government on policy and laws concerning land development at national and provincial levels.
Housing Act 107 of 1997	<ul style="list-style-type: none"> • A policy shift to state control of housing delivery, providing the general principles for sustainable housing development ;and • Defining the functions of national (to establish and facilitate the process), provincial (to create an enabling environment) and local governments (to ensure the delivery of housing as part of the integrated development plan).
Urban Development Framework (1997)	<ul style="list-style-type: none"> • Foster linkages among the various urban development initiatives and promote a realignment of actions through the identification of priorities. • Avoid separation between spatial planning and economic planning in South African cities. • Clarify intergovernmental relationships.
Rental Housing Act 50 of 1999 (amended in Act 43 of 2007)	<p>Gave government the responsibility to:</p> <ul style="list-style-type: none"> • Promote affordable rental housing for historically disadvantaged people; and • Facilitate the provision of rental housing in partnership with the private sector.
People's Housing Process (1998)	<ul style="list-style-type: none"> • To get beneficiaries involved in the housing process (decision-making) and contribute (sweat equity) towards building their own homes.
White Paper on Spatial Planning & Land Use Management - Dept Land Affairs 2001	<ul style="list-style-type: none"> • To facilitate land allocation to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources.
Breaking New Ground: A Comprehensive Plan for the Development of Sustainable Human Settlements (2004)	<ul style="list-style-type: none"> • Meant to lay the foundation for a new housing policy and research agenda.
Social Housing Policy for South Africa (2005)	<ul style="list-style-type: none"> • Contribute to building integrated sustainable settlements. • Providing rental housing as an option for people experiencing poverty.

Postapartheid policies proposed compact, integrated cities, higher densities and settlements near jobs. The White Paper on Housing (1994) wanted to establish viable, socially and economically integrated communities in locations that would enable all people of South Africa access to housing. The Development Facilitation Act of 1995 promoted sustainable development and set the principles for governing land development throughout South Africa. The Housing Act 107 of 1997 shifted control of housing delivery to the state and assigned the national government the responsibility to establish and facilitate the process. The provincial government became responsible for creating an enabling government, and local governments had to ensure housing delivery as part of their integrated development plans. The Urban Development Framework (1997) focused on realigning government initiatives and clarifying intergovernmental relationships. The People's Housing Process (1998) aimed to get the housing beneficiaries involved in the housing process and contribute (sweat equity) to building their own homes. Later, the Rental Housing Act 50 of 1999 (amended in Act 43 of 2007) gave the government the responsibility of facilitating the provision of affordable rental housing, working in partnership with the private sector. The White Paper on Spatial Planning and Land Use Management (2001) promoted optimal, sustainable and integrated management of land resources.

The government introduced the *Breaking New Ground: A Comprehensive Plan for the Development of Sustainable Human Settlements* (2004) to address the unintended consequences of the new policies. In *A Review of the Housing Policy and Development in South Africa since 1994*, Tissington (2010) identifies numerous problems related to housing development, including peripheral residential development, poor quality products and settlements, the absence of community participation, the limited secondary low-income housing market, corruption and maladministration, slow delivery, underspent budgets, limited or decreasing public sector participation, the increasing housing backlog; and the continued growth of informal settlements. However, the *Breaking New Ground* plan did not introduce new policy directions and hardly changed the government's approach to housing development. The *Social Housing Policy for South Africa* (2005) was introduced to address structural, economic, social, and spatial dysfunctionalities by providing rental housing as an option for people who could not afford to buy houses.

Marais (2023) labels the undoing of the impacts of apartheid spatial planning policies in the mining context as a goal dependency. For example, postapartheid housing policies focused on promoting homeownership, creating open towns (normalisation) and developing integrated

human settlements. However, the policies assumed continued growth and ignored the complexities of mine closure (Marais, 2023). Mine decline and closure disrupt the place attachment and socioeconomic prosperity that mining creates (Marais, 2023). Despite the introduction of various laws to address past injustices and ensure sustainable settlements, the apartheid legacy remains entrenched (Berrisford, 2011; Muswaka, 2017). However, the inability of the key role players to understand and respond to mine decline and closure creates new legacies and could reinforce some spatial planning problems. In the West Rand, the settlement situation has been exacerbated by the negative consequences of the shrinking local economy (see Chapters 5 and 6). Population dynamics, migration, and transport have shaped the settlements (DFFE, 2012).

7.3.1.1 Dismantling mine compounds

Mine compounds for Black mineworkers were an important component of the apartheid spatial strategy (Bezuidenhout & Buhlungu, 2010; Crush, 1992). Although mines needed cheap Black labour, the apartheid government did not want Black people to reside permanently near the mines (Vosloo, 2020). The same principle did not apply to the White workforce. Black miners were confined to mine compounds that were designed to control their movement and behaviour. For mining companies, the compounds reduced labour inefficiencies and ensured a constant, controllable and disciplined labour supply (Vosloo, 2020). Compounds also protected White communities from the large concentration of Black male mineworkers. Crush and James (1991) report that, by 1991, over 97% of the mining workforce (500 000 workers) lived in single-sex compounds.

Postapartheid policies abandoned the compound system, although a closer look at the mineworkers' preferences showed that compound dwellers opposed abolishing the system (Crush, 1992). Crush (1992) adds that the National Union of Mineworkers advocated for the system to be more humane.

Marais (2023) reports that postapartheid housing policies viewed homeownership (see the White Paper and *Breaking New Ground*) as a strategy for creating stable mining communities and building local economies (admittedly, homeownership for mineworkers became available in the mid-1980s). Property was viewed as an asset that could be converted by the owner to monetary value or used to acquire other assets. When apartheid ended, mining companies were compelled to demolish the single-sex hostels (also because of the inhumane nature of these hostels) or

convert them into family units, eliminate the institutionalised migrant labour system, and end housing discrimination between Black and White mineworkers (Marais, 2023). Mining companies were also obliged to work with unions to facilitate homeownership for their employees (Pelders & Nelson, 2019). These policies ignored the potential roles of mine closure in creating instability, which led to distressed communities when mine workers lost their jobs and could not retain their homes.

Postapartheid policies removed requirements to reside in mining hostels (although some relaxation started in the mid-1980s). Mining companies adopted what has been referred to as a ‘clean wage’ system, which, instead of providing services (housing, food, transport), offered workers monetary wages only. Mining companies opted to sell or privatise hostels, abandoning their traditional role of providing housing for their employees (Marais & Cloete, 2013). Although many single-sex hostels have been converted to family housing, others have been demolished, and some remained for decades after 1994 (Vosloo, 2020). Furthermore, the closure of compounds contributed to urban sprawl and poorer housing outcomes for mineworkers, such as an expansion of informal settlements (Marais & Venter, 2006; Marais et al., 2020). These outcomes were in direct conflict with creating higher densities.

7.3.1.2 Normalisation

The company town is one of the main outcomes of mining practice globally. Mines create and manage these towns to ensure access to a qualified labour force. However, company towns became problematic for two reasons: the criticism that a for-profit company manages public goods, and the additional costs added to mining companies’ costs (especially when the tax benefits of providing these services changed) (Marais et al., 2018). The active process of mining companies dissolving these assets and placing them under democratic rule is known as normalisation.

As reported in Section 7.2, normalisation became a global trend in the 1970s (although earlier in Canada), through South Africa only embraced it as a policy in the 1990s (Marais et al., 2018). Normalisation meant that local governments took over the management of mining towns from the mining companies.

A focus group respondent said that communities had been disrupted by concerns that normalisation meant “there was only one place we can run to when we get problems. It is the municipality, which doesn’t have money” (FG3, Q6). In South Africa, normalisation had to

promote sustainable mining strategies and entailed collaborative planning between mining companies and local governments. Communities that depended on mining companies now had to rely on local governments (Marais, 2023). Normalisation sometimes included privatising mine housing to individuals or even resettlement (Van der Watt & Marais, 2019). People who rented housing from the mine had the following options: becoming homeowners, renting from other owners, or settling in informal settlements.

The postapartheid government viewed mining as a main driver of development. The privatisation of housing through normalisation was key in this process. However, this view did not consider the consequences of closure and mining volatility (Marais et al., 2021). Many respondents referred to the decline in mining, but some said that the decline did not result in many people leaving the area (R1, Q5, Q6). Consequently, the normalisation process could have contributed to lower outmigration; instead, people now own housing assets in places where the economic viability is limited.

Normalisation also relinquished mining companies from their historical responsibilities. A respondent explained that normalisation meant:

Mining companies have no responsibilities towards communities (building houses, schools, clinics ...) but only take out resources. Today, when you speak to mining companies about houses, water... they say it is the responsibility of local government. (R6, Q44)

Normalisation has been a way to shift responsibilities away from mining companies to local government and to avoid the long-term consequences of mine closure (Cloete & Marais, 2021; Van der Watt & Marais, 2019). As part of relaxing spatial controls, normalisation was used to reduce the dominance of mining companies (Van der Watt & Marais, 2019). The democratic government wanted local municipalities to be more accountable to their constituencies (something that was not possible if the mine managed a town). In some cases, the normalisation was supported by residents, unions and mine workers. Marais et al. (2021) argue that unions, the government and the private sector favoured both normalisation and neoliberalism (favouring free-market capitalism over state interventionism). Normalisation has meant local communities and authorities must engage with powerful multinational mining companies. The capacity to do this was often not available. Normalisation also meant that the government became responsible for managing the fragmented settlements created by the mining industry.

7.3.1.3 Promotion of homeownership

South Africa's postapartheid housing policy has encouraged homeownership, although a formal rental programme also exists. Homeownership is intended to develop stability, create wealth and transform society. The Strategy for Revitalising Distressed Mining Towns is a prime example (DPME, 2019). The strategy was developed after the Marikana Massacre¹⁰ in 2012, it foregrounded homeownership to create community stability in mining towns. An Inter-Ministerial Committee was established in 2012 to address the socioeconomic challenges in mining areas and their respective labour-sending areas. The challenges identified included challenges experienced in building integrated and sustainable human settlements, improving socioeconomic conditions, improving working conditions of mine workers, ensuring decent living conditions and making meaningful contributions to mining town/labour-sending area development (DPME, 2019). Many new housing schemes occupy land on the periphery, far from employment and economic opportunities (Harrison & Todes, 2015).

The relaxing of controls over the movement of Black labour meant that mineworkers could own houses and live outside mine hostels. Mineworkers could get a living allowance and they increasingly acquired houses. Homeownership in a mining environment was viewed favourably and was used to reduce circular migration by creating place attachments and social stability (Marais, 2023). However, Marais (2023) observes that efforts to promote homeownership do not consider the impact of mine closures on homeowners. When homeowners lose their employment, they may be forced to adopt various strategies, including selling their homes, evacuating them, renting them out and moving to informal settlements, erecting backyard rooms and engaging in the informal sector, to survive. NIE highlights the unintended consequences of institutional change, which is often attributed to the uncertainties that prevail in communities, path dependency (historical experiences), social norms, or the envisaged high transaction costs. The poor housing conditions created by shifting more people into informal settlements have been seen as a path dependency in policy (Cloete & Marais, 2020).

¹⁰ On 16 August 2012, members of the South African Police Service killed 34 men at a Lonmin platinum mine in the Marikana area in the North West province, South Africa.

7.3.2 Consequences of relaxing controls and mining dependencies

Relaxing spatial controls in general and in the mining context particularly has many consequences. In the next subsections, I will refer to interviews with respondents to reflect on these consequences.

Mine villages in disarray

Normalising mining towns shifted control of the mining settlements from mining companies to municipalities and the private sector (Van der Watt & Marais, 2019) (Figure 5.1 is a map of the location of these mining villages). Normalisation meant that mining companies could focus on core mining activities, and cease managing towns and housing estates. The shift had unintended consequences. A respondent representing a municipality explained the predicament in the West Rand when the mines closed:

Mining companies constructed many mining villages many years ago, during the apartheid era. These villages were located next to the mine shafts instead of being in sustainable localities and growing the towns. They started building mine villages all over the place, hostels, and all kinds of things in unsustainable localities. So, when the mines close, most of my villages are not viable or sustainable. They have never been viable. They have just been cross-subsidised by gold mining.

The mining companies were willing to keep these artificial villages going. However, once the gold finished, it was not viable [to do so]. The municipality does not have gold to pay for these villages. More than normal property rights and tariffs are needed to pay for these villages because they are built in expensive ways. Well, they were built unsustainably cheaply for the mine to do temporarily. They did not consider sustainability in those days. (R5, Q25)

Other respondents concurred with this feedback. There are two main problems: location and infrastructure. The respondent above points to locational problems, such as needing to be in a different location. To a large extent, municipalities should not be expected to deal with the historically fragmented settlement pattern created by the mining industry. These location problems spill over into infrastructure problems. The infrastructure for these villages had two main concerns: locationally dependent on a small scale and local infrastructure, and they were often not built with long-term planning in mind. Yet, normalisation processes now expect long-term planning and appropriate infrastructure systems that fit economies of scale.

A respondent explained that mine villages have been plundered and, in some cases, the materials have been used to build shacks: “Some areas now look like they have been bombed” (R6, Q8). A civil society respondent asked about innovative ways of converting mine infrastructure to benefit local communities, for example, by repurposing old power plants to produce renewable energy. The Blyvooruitzicht village is a typical example of a settlement in the West Rand that has been destroyed by normalisation and mine closure.

Blyvooruitzicht village

The Blyvooruitzicht Gold Mine is one example of the social impacts of mining villages and mine closure in the West Rand. The case shows how living conditions in mining villages deteriorate when mine ownership changes (an early indication of closure, see Chapter 4). Blyvooruitzicht Gold Mine is located 5 km south of Carletonville in Merapong City Local Municipality; it started production in 1942. Blyvooruitzicht Gold Mine built a thriving village that provided houses and hostels for its employees, and the amenities included schools, health clinics, churches, playgrounds and recreation facilities. The mine provided essential services such as water, sanitation and refuse removal and contributed to the infrastructure and community development projects. However, in the last few decades, the mine's contribution declined. Ownership of the mine changed from the Blyvooruitzicht Gold Mine to DRD Gold Limited (in 1997), then to the Village Main Reef (in 2012), and Blyvoor Gold since 2016 (LHR/FIDH, 2017). Unfortunately, the contribution made by the mine to the village life decreased with each successive owner. When the mine experienced financial problems in 2009 and filed for insolvency in 2013, the village was severely disrupted (LHR/FIDH, 2017). Respondents observed that after the Blyvooruitzicht village was sold to a private buyer in 2015, it changed into a slum (R9, Q11). The LHR/FIDH (2017) reports that problems had started earlier, showing that the liquidators were under pressure to sell the mine in November 2013, when electricity was cut due to non-payment. From that time, the living conditions deteriorated. Employees were not paid, the mine hospital closed, and *zama zamas* invaded the mine premises, leading to clashes with village residents. Air pollution increased due to lack of maintenance of the tailings, and shaft 5 flooded, leading to acid water polluting the soil. Garbage was not collected and it piled up in the village, creating a health hazard. Comments such as “Blyvoor is an absolute disaster” (R5, Q63) were common in the discussions.

The future of the Blyvooruitzicht Village remains uncertain. Communities do not know whether the village will be integrated into the municipality and whether the government will take over

service delivery. Residents fear their houses will be sold to the private sector or demolished. Job losses and uncertainties have pushed many people to informal settlements. Communities have resorted to litigation, where possible, for instance, labour unions' attempts to protect the interests of workers, and the Green Scorpions court case that accuses the directors of Blyvooruitzicht and Village Main Reef gold mining companies of significant pollution and environmental degradation (Federation for a Sustainable Environment, 2017). Olalde (2018) describes the abandoned Blyvooruitzicht Gold Mine as “once one of the country’s most productive gold operations and is now a source of pollution, violence, illegal mining gangs and headaches for adjacent mines”.

This is a typical example of a failure of normalisation. However, it was also a specific type of normalisation, in which the houses were not sold to specific occupiers, but the entire town was sold to an entrepreneur. The result is extremely negative, and contributes to further sprawl and worse housing conditions for former mineworkers. The local municipality was unable to manage the dependencies and contain the situation.

Struggling to manage dependencies

Chapter 4 described how mining operations create dependencies that cause social disruptions at closure. Municipalities grapple with managing dependencies created by mining and optimally utilising the mine infrastructure left behind. A respondent from the private sector explained the cause of the dependencies:

People were given accommodation that cost 10 Rands for everything. People needed the financial sense to secure accommodation for themselves and everything else they would need when they were no longer working. So, informal settlements increase, and that brings a beating on municipalities.
(R3, Q3)

Other respondents referred to similar dependencies, which left people stranded. Communities rely heavily on mining. Subsidising settlements creates long-term dependence, and people are unable to manage in a context where the mines do not pay for everything. So, when a mine closes quickly, it has a significant effect on the settlements.

A respondent pointed out that, when mining towns and villages were established, mining companies were – at the time – not obliged to seek municipal approval and only circulated building plans for noting from a disaster point of view. Consequently, mining companies used different building construction techniques, such as sewerage that was not underground, to detect

and fix leaks quickly. Mines used the old type of electrical infrastructure, mostly 6.6 kV, which is no longer used. The problem is that the 6.6 kV substation infrastructure cannot be converted to the 11 kV infrastructure currently in use, which means it must be rebuilt. Without the required resources to make the conversion, the infrastructure will be unutilised and vulnerable to vandalism, disruption and loss to the settlements.

Scholars emphasise the importance of linking social disruption (a term often used to explain the disruption that large-scale mining brings) to mine decline and to advocate for town planning approaches for mining towns that “avoid creating long-term dependencies and focus instead on creating flexibility” (Marais et al., 2022, p. 1). In addition to the path dependency in spatial planning policies in the postapartheid period, new interdependencies developed during this period (Marais et al., 2020). According to Marais et al. (2020), the new rules changed the relationship between the stakeholders. The strong interdependencies between government and the private sector during apartheid, which had shaped the settlement patterns, changed under postapartheid policies that gave local municipalities the power to provide infrastructure. Local municipalities must facilitate participatory processes and incorporate housing plans in their integrated development plans. Postapartheid policies assumed that local municipalities would manage housing delivery, which has not happened (Marais et al., 2020). Furthermore, homeownership transferred the power of mining companies to manage the delivery of houses to individuals. It can also be observed that the dependencies that were created, including path dependencies, goal dependencies and interdependencies, make it difficult for local municipalities to develop appropriate strategies and manage mine decline and closure (Marais et al., 2020). NIE observes that these dependencies influence decision-making processes and may cause inefficient institutions to persist even when better options are available (Kingston & Caballero, 2009).

The decision to integrate or demolish

A private respondent explained that, when mines close, infrastructure in the mining towns and villages must either be demolished or integrated (including selling) into the municipal plans. The local municipalities must decide whether to take over mine infrastructure. A public sector respondent cautioned that not all infrastructure donations by mining companies to the municipalities are worth inheriting. The public sector respondent explained how mining companies had appealed to the government to take over employee housing and other infrastructure, although this had not happened, due to financial constraints. Another public sector respondent observed that people who promote integration “do not realise the unsustainability of

it” and that “municipalities can’t continue supporting such environments” (R5, Q61). Furthermore, some properties are auctioned to business people, which is legal but creates divided communities (R2, Q 25).

The decision to integrate or demolish houses and other infrastructure must comply with all legal requirements. So, where mines are located becomes critical. One respondent from the public sector explained this dilemma as follows:

It is almost sacrilege to demolish houses in a country with such a big housing shortage crisis, but on the other hand, it has to be done; otherwise, it will bring down the municipality financially (R5, Q26).

A respondent stressed that maintaining ageing infrastructure located far from the municipal core infrastructure networks is costly. Furthermore, the infrastructure that may be useful could require repairs and maintenance. So, the question becomes whether the government has the required financial resources (R1, Q38). Other respondents suggested a regional approach to the reuse of infrastructure, which would involve provincial government departments; they added that municipalities should bring other provincial departments on board to find ways of utilising the infrastructure. In addition, mines need permission to either convert or demolish buildings (there is evidence of such requests). A public sector respondent said that, when it is deemed necessary, demolition can go ahead on condition that the mine provides a place for the mineworkers to live or provides them with a living-out allowance (R9, Q19). However, this only occasionally happens in practice.

One mining company respondent indicated that the nature and magnitude of the problems are not yet clear, and added that municipalities only had cost estimations for the integration option – nothing concrete for planning purposes. Also, several rules have guided them about whether to integrate or demolish. For example, settlements for integration had to be outside the dolomite area, houses could not be allowed in the 500 metre zone of slime dams (tailings), and to be sold, the land had to be converted into ‘sellable land’, by making sure it was not subject to high levels of radiation or any other emissions or spillage. Furthermore, all decisions have to comply with the integrated development plans and spatial development frameworks. A private sector respondent cautioned that, in terms of the legislation, any infrastructure that can be used for housing purposes may only be demolished with the minister's consent. He said, “This makes it difficult because any house on mine property that can be utilised for housing cannot be destroyed” (R9, Q2).

The decision to integrate or demolish housing infrastructure when the mines close (or mining sites are abandoned) poses a huge challenge for local municipalities, because, in some instances, the infrastructure could be deemed valuable to the communities, but have been declared unsuitable because of its location or unsustainable due to resource constraints. Such decisions have the potential to create conflict and divide the community. Political actors may interfere with rational decision-making processes, and a wrong decision may prevail, leading to further unintended consequences.

Informal settlement development and land invasion

The growth of informal settlements is a global phenomenon associated with the growth of urban populations; these settlements are often located in geographically and environmentally sensitive areas, and the phenomenon is attributed to a variety of interrelated factors. Chapter 5 highlighted significant growth in informal settlements in the West Rand over the past three decades. In Chapter 5, I argued that these informal settlements result directly from mine closure. The interviews provided more context on why mine closure contributes to informal settlements developing. A focus group participant said the following:

Mines mostly employed people from outside the West Rand. They are accommodated here because they are working in the mine. The problem is that these people have nowhere to go when mines close. They must seek a place to stay. When they do not have a place to stay, they put shacks everywhere they see. Due to their experience working at the mine, they start mining from where they are staying. They know where the gold is and how to get it.

This perception was echoed in most discussions to explain the West Rand's predicament. Migrants to the West Rand opted to live in informal settlements while they waited for jobs and other opportunities. Settlement patterns observed in South Africa show that harsh socioeconomic conditions force poor migrants and immigrants, including asylum seekers and refugees, to live side by side in informal settlements, all experiencing the hardships caused by poverty, or lack of public services and infrastructure (Oksiutycz & Azionya, 2022). Such co-existence under challenging circumstances is likely to induce conflict, especially in conjunction with mine decline and closure. What has transpired has defeated government intentions to integrate settlements.

Government policies post-1994 promoted densification, home ownership and the integration of mining communities in local municipal arrangements. In the West Rand, mine decline and

closure have contributed to the growth of informal settlements. For the local community, erecting informal structures is a strategic option when mine closures are imminent (Marais & Cloete, 2013). People opt to live in shacks when they cannot afford formal housing or are uncertain of their livelihood strategies. Others choose to live in informal settlements and invest in a home in rural areas. Some people decide to remain in informal settlements and endure the hardships characterising life there, despite progress in their financial status. Development efforts to upgrade informal settlements bring hope to the dwellers, which encourages them to stay. Social norms and networks may also encourage people to remain in informal settlements.

In addition to mine closure that creates informal settlements, there was evidence of changes in labour arrangements contributing to the creation of informal settlements. A respondent observed that, post-1994, mining companies instituted living-out allowances but retained the migrant labour system. “This led to mine workers taking the allowance and opting to live in shacks. Today, shacks surround all mines; mine workers have found their way into informal settlements” (R6, Q8).

Furthermore, the loss of employment opportunities has contributed to an upsurge in land invasion in the West Rand. Groups of people illegally occupy private or public land, and have erected shacks or established informal settlements. The Prevention of Illegal Evictions and Unlawful Occupation of Land Act (Act No. 19 of 1998) states that illegal occupiers of land can only be evicted with a court order. Eviction without a court order constitutes a criminal offence, which may lead to the landowner facing a prison sentence. So, the Police must intervene before any form of structure or permanency is established. The eviction of illegal occupiers is done by force, it often causes land invaders distress and loss of property. As noted in Chapter 6, having to be on the lookout to prevent illegal land occupation is one of the daily frustrations of local municipalities.

The persistence of apartheid settlement patterns has been explained as a path dependency of the migrant labour system and goal dependency of government policy (Cloete & Marais, 2020). Both migrants and the government have continued their old practices despite changes in the institutional framework. NIE scholars (refer to Chapter 2) explain that institutions, particularly informal ones, change slowly. Hence, the past has an enduring influence on the future.

Increase in social unrest

Chapter 5 reported increased social unrest in West Rand settlements. People use protests to express their frustrations – a typical response in the Southern African context (Kali, 2023; Lancaster & Mulaudzi, 2020). South Africa has a strong protest culture and is described as having one of the highest rates of protest in the world; the protests primarily stem from the development and social challenges experienced post-1994 (Lubinga, 2020). In the West Rand, the major contributors to social unrest are high unemployment, persistent, inadequate service delivery and political problems relating to mine closure. Respondents often said that, when communities are frustrated, they protest (R4, Q3). Protests are a tool for communication, and rooted in a history of mass action against apartheid laws and practices (Lubinga, 2020). Sometimes, the protests are violent, and involve looting of businesses and burning buildings, and lead to people losing their lives or sustaining injuries. According to Kali (2023), protests are associated with perceptions of injustice or wrongness, and the government is often blamed.

The loss of jobs due to mine closure has disrupted communities, leading to the deterioration of living conditions for many and a proliferation of informal settlements. One respondent observed that people protest for their constitutional rights, like housing, education, electricity, water and sanitation. Protesters come together to express their frustration with injustice, challenge policies or behaviour, and seek reform, redistribution of resources, or change of institutions. Instead of the government addressing the issues, it uses the police to “suppress” peoples’ demands (R6, Q8). Reference was made to police calls for calm and interventions to stop the vigilantism against illegal miners in the West Rand (Majola, 2022). Majola (2022) reports that residents had blocked roads and closed off the non-operational mine dumps in the area. However, not all communities feel free to protest, for fear of reprisal (FG3, Q12).

A respondent who represented the public observed that, often, it is difficult for municipalities to talk to communities about the planning of human settlements, because there is much frustration about various service delivery issues. The respondent said, “They want to talk about the other problems [water, sanitation, housing] caused by the municipality”, not town planning (R5, Q61). The respondent also emphasised the importance of getting consensus among the stakeholders on crucial decisions, such as spatial development planning, as local buy-in is often lacking. Anxiety is also associated with the anticipated demolition of mine houses, following mine decline and closures. According to R5, meaningful conversations with communities on closure, as espoused by the government and stipulated in development strategies, do not happen.

Continued migration

Relaxing urbanisation controls is associated with increasing urbanisation rates, with people moving to where socioeconomic opportunities are (Harrison & Todes, 2015). The relaxation of regulations since the mid-1980s increased population mobility in South Africa. The movement of Black mine workers to and from the mining areas, including the West Rand, form an integral part of the livelihoods and economies in southern African countries (Harington et al., 2004). The socioeconomic crises experienced in southern Africa and other parts of the continent make migration a preferred livelihood option for many migrants. Scholars note that migrants often do not want to settle permanently, but choose to retain ties with their place of origin (Posel, 2004). Migrant labour has persisted, and is a dependency despite regulation changes (Marais, 2023).

Respondents referred to the migration patterns that brought so many people from as far as the Eastern Cape, Limpopo, and even neighbouring countries. Despite an escalation in mine closure over the past decades, the inflow of migrants has continued, and a response like this was common: “when mines close, people do not return; they continue to live where they are” (R3, Q3). Respondents observed that some people stay because they have houses, but there are other reasons.

Staying on and settling in the area also occurred because people were misinformed about the mines reopening and that jobs would become available (R5, Q8). A respondent of the municipality explained that the migration causes many problems for the municipality regarding housing, especially because it is not the ‘normal’ households that move in, but mainly single men, mostly from rural areas. Some of the men already have families at their places of origin. Some start second families in the West Rand, which has socioeconomic implications.

Many respondents used the big informal settlements found next to some mines that keep growing as evidence of a continued influx of people. According to a respondent who represented the municipality, the municipality cannot establish these areas as new towns/settlements, because the land is unstable. So, the municipality encourages people to move to more sustainable settlement areas (R5, Q11).

The in-migration also leads to the construction of backrooms and other illegally constructed dwellings, which causes problems for municipalities. Attempts by the municipality to legalise some of the structures cause much friction. Some informal settlements have become hotspots for violent crime, which forces people to move to other areas (R5, Q12). Respondents reported that there is much movement of people – people exercise options different from what is often found elsewhere.

Relaxing spatial controls increased people's mobility within and from outside South Africa. The respondents echoed the view that mines purposively created dependencies that were not sustainable. Migrants to the West Rand mostly relied on a local economy that was largely dependent on mining operations. Migrants continued to move to the West Rand even after mines closed, and economic opportunities declined. This is a path dependency – a preferred route followed by generations in the past. As stated by NIE scholars, informal institutions change slowly.

Harrison and Todes (2015) refer to spatial manipulation of the institutional changes to protect the interests of the elite, a practice that is validated by planning processes. The institutional changes have enabled some level of desegregation, although it is evident that “integration remains elusive and more complex” (Harrison & Todes, 2015, p. 160). According to NIE, formal institutions can be changed quickly by the state to respond to societal needs; in turn, informal institutions change very slowly. North (1993) observes that institutions are not formed to provide social efficiency or influence people's behaviour in a certain way, but rather to protect and serve the interests of dominant groups that can lobby and create new rules (North, 1993; Wegerich, 2001). Sadly, communities have been on the back foot, and are unable to exert pressure on the institutional arrangements.

7.4 SPATIAL PLANNING AND DENSIFICATION

Apartheid laws perpetuated urban sprawl in South African cities as Black residents were pushed to the outskirts, far from the White settlements (Marais, 2020). Relaxing spatial regulatory controls in South Africa post-1994 raised hopes that integrated urban areas would develop, which would be a shift away from the racially defined sprawling settlement patterns. The transition posed a challenge for planners and decision-makers tasked with changing the formal institutions (rules) to build more equitable communities. The literature and respondents' views (i) show that the sprawling of settlements has continued, and (ii) highlight the nature of spatial planning and its challenges as experienced by the West Rand, and South Africa in general.

7.4.1 Continued sprawling of settlements

Mining companies still own large tracts of land, with some villages far from core municipal centres. FG3 participants described the vastness of the neighbourhoods, the tunnels underground going in different directions, and the danger of sinkholes, which can happen at any time.

Participants commented, “This is not our land. Every business set-up, even a carwash, must be approved by the mine”, adding that it is not easy for communities to get involved in income-generating opportunities.

People may seem to be sitting on their land, but they cannot do anything on this land.

This is private land. Nothing can happen, even when people have skills.

This is not my land. Everything we do here, we must get permission from the mines.

Everything here is about the mine. Even as the mines shut down, the land still belongs to the mines.

Participants described the predicament municipalities find themselves in because land does not belong to the municipalities. It is difficult for municipalities to start development projects because the land belongs to the mines.

R1 observed that the large tracts of mine land include several artificial mountains (mine dumps) that pose a health hazard and need to be rehabilitated. R5 observed that some mining companies have made their land available for development projects, which is bound to increase urban sprawl. In addition, some of the villages and industrial complexes owned by the mines can be repurposed for economic activities.

The relaxing of spatial controls post-1994 was aimed at restructuring cities, building more compact urban areas, and providing economic opportunities to previously disadvantaged communities (Harrison & Todes, 2015; Marais et al., 2020). Although significant changes have followed the removal of apartheid laws and the introduction of new state policies, Harrison and Todes (2015) observe that change has not led to the desired spatial transformation. Andrew (2020) reports that hope for significant social change, including land and agrarian reform, have yet to yield meaningful results. Contrary to the desired compact and integrated urban centres, growth on the urban periphery has continued in South Africa’s urban areas. Mining towns have continued to sprawl, partly because of private sector and government-subsidised housing projects, the provision of living-out allowances to mineworkers, the loss of employment and houses due to mine decline and closure, and the absence of good rental houses.

7.4.2 Spatial planning and challenges of densification

The rapid global urbanisation rate, especially in developing countries, has pressured municipalities to deliver sufficient quantity and quality services. Chapter 3 reported that, where shrinkage is happening, it is often unclear how to address it, and the tendency is to try to generate growth and pursue prosperity (Schlappa, 2016). A respondent observed that sometimes “government does not know what to do, and municipalities have not, to a large extent, reached out to the government for assistance” (R5, Q34).

Today, spatial planning in South Africa is regulated by legislation, including the Spatial Planning and Land Use Management Act 16 of 2013. This act provides development principles, norms and standards that guide spatial planning, land use management and land development. In South Africa, spatial plans should align with their integrated development plans. Municipalities must prepare both plans. To ensure sustainable and inclusive development and societal and spatial transformation in the province, the Gauteng Spatial Development Framework compels all developments to follow six spatial development principles: liveability, concentration, connectivity, conservation, diversity, and viability (Gauteng Provincial Government, 2015).

Like other municipalities in Gauteng, the West Rand promotes densification to maximise resource use. Also critical is the integration of poor communities into the urban system, especially those on the outskirts of the urban centres. Chapter 6 highlighted the West Rand’s strategies for revitalising the local economy. Among other activities, the strategies entail investing in bold, large-scale infrastructure projects to diversify the local economy, counteract the negative impacts of the decline in mining, and improve connectivity.

A public sector respondent observed that the West Rand is consolidating development using the spatial development framework, and that anything that falls outside the core infrastructure network is rejected, “and it is mostly the mining villages”. The process entails assessing which mine villages would be viable for adaptive reuse and which ones will have to be demolished, and initiating major economic projects. “We need game changers. We cannot do normal projects anymore. Too much time has elapsed” (R5, Q67). Also, densification has occurred in ways not supported by government policies (unintended consequences), such as the construction of high-density informal settlements and backyard shacks, particularly in townships. Township regeneration and attempts to attract various investments and settlements along identified activity nodes are designed to increase densification.

A private sector respondent acknowledged that various laws and projects are in place to change the settlement patterns; they emphasised the importance of monitoring the transformation processes. Mining companies go through processes to dispose of mining villages and infrastructure when mining ends, a legal process known as incorporation. The process entails changing the land rights from (usually) agriculture or mining to individual erven streets and parks that can be registered in the Deeds Registry and transferred to a third party. According to a private sector respondent, all these processes form part of mine closure and must be monitored, which is still a challenge, more particularly for the social than the environmental impacts.

Densification is also difficult, because of the limited capacity of officials. A private sector respondent described the Spatial Planning and Land Use Management Act as practical legislation that clarifies the whole structure of a spatial planning system for the first time in South Africa.

The document clearly outlines what should be done by the municipalities. The frustration is not with the legislation but with the officials who run with this legislation not thinking on an integrated level; they still think and work in silos. Integrating the different legislation and what they want to achieve is not done. It becomes difficult to get the logic of what is happening (R9, Q13).

The respondent acknowledged that the act is a useful document, but is disappointed by the municipalities' failure to use it to integrate the different aspects of planning to ensure cohesiveness.

7.5 DECLINE PLANNING AND RESTORATION

The perspectives of respondents and focus groups show how the distress caused by mine decline and closure has further harmed communities that had been injured by apartheid laws. Respondents reported that mine-hosting communities bear the brunt of mine closure and have been damaged in complex and persistent ways. Therefore, the West Rand must repair and give hope to the hurt communities and rebuild broken relationships. To ensure sustainability, a public sector respondent said communities should be empowered to restore themselves – everything (land, water, air) that has been destroyed should be restored. Also, CSOs should work alongside communities to enable them to realise the power to engage and empower them to drive their processes (R6, Q36-38).

NIE acknowledges that a change in formal institutions/strategies affects informal institutions, often in complex and unpredictable ways, leading to unintended consequences. NIE also requires that institutions that support development/transformation invest sufficiently in education, health, and infrastructure, increase trust in the community and allow freedom of expression and association. Also, past experiences influence the present and should be considered when planning. Hence, changes to the institutional arrangements, whether successful or not, present opportunities to learn, adjust and refine strategies.

Chapter 6 identified strategies that have been developed by the West Rand, as well as changes proposed by the respondents. As noted in Chapter 3, strategies for addressing the numerous challenges presented by shrinking cities have evolved from pro-growth planning processes into creative ways of dealing with the phenomenon. Urban scholars have observed the need to pursue a non-growth planning paradigm. They realise that achieving successful development in shrinking cities is impossible through the pursuit of growth-oriented strategies (Joo & Seo, 2018). Decision-makers should focus on improving the quality of life for the people remaining behind, rather than attracting new people and investments to the neighbourhood (Weaver et al., 2017).

The shrinking cities framework acknowledges the complexity of planning for decline and that planners are bound to be inclined towards achieving steady growth, which makes it difficult for shrinking cities to adapt to new circumstances. Creative approaches, such as smart decline and rightsizing theories, encourage the optimal use of the available resources, compact land uses and mixed building types, and discourage urban sprawl. Also deserving of emphasis is bottom-up planning, active citizen participation, and social justice, as well as recognition of the uniqueness of the shrinking city, including its history, ecology, different cultures and interests, economic realities (local, regional, global) and political dynamics. Although knowledge of the regional context is essential, it should not dictate the local plans.

The literature also indicates that effective collaboration, civil society empowerment, and the development of appropriate social capital are critical. Hence, governance arrangements ought to be appropriate for the local context, and there should be meaningful engagements with civil society to build mutual trust, find appropriate responses, and define the path of the future. Leaders who embrace decline as integral to finding solutions and forming meaningful engagements with stakeholders are paramount. On the one hand, leaders ought to be strategic thinkers with sound logic and reason to understand the nuisances of the challenges faced by

different groups, but on the other hand, they must be mindful, intuitive, empathetic, and able to inspire authentic engagement and collaboration. These two leadership competencies are necessary to heal and strengthen individuals and affected communities, address shrinkage challenges and build sustainable communities.

7.6 POSITIVE CONSEQUENCES OF MINE DECLINE AND CLOSURE

The predominant view of the respondents and focus groups was that nothing good comes out of mine decline and closure. Despite the largely depressing issues raised in the discussions, a few people did allude to positive outcomes that could be realised if closure and planning processes were managed well. Firstly, mines have started releasing thousands of hectares of agricultural land to the municipality for economic development. The West Rand District Municipality can now develop game-changing projects, promote agriculture and agro-processing programmes prioritising training and learning (R5, Q58; R2, 57) and diversify the local economy by investing in agriculture and tourism, which present better prospects for a sustainable local economy (R3, Q24).

Secondly, the closure of large mining ventures has highlighted the need for artisanal small-scale mining. If it were to be regulated and supported, this type of mining could provide opportunities for job creation. The government has been challenged to explore how best to deal with derelict and ownerless mines and to consider whether small-scale mining is viable. Another respondent added that embracing artisanal small-scale mining will require a change of mindset – a shift away from what South Africa is accustomed to (large-scale mining),

but if all the role players work together to find solutions, we can all benefit economically as people are willing to work to support their families. artisanal small-scale mining will benefit more than just the operations of direct workers or small owners. It will also relieve the government of having to 'babysit' all these holes that are all over (R3, 21).

Thirdly, it is crucial to learn from past experiences and to avoid unnecessary and improper closures. It could also be possible to find alternative ways of utilising mine infrastructure for social and economic benefits. As described in Section 7.3.2, some mine villages and industrial complexes can be repurposed for alternative socioeconomic activities. Resources generated by mining can be channelled into non-mining activities that can sustain livelihoods.

A civil society representative was confident that many positive objectives can be achieved, though doing so would depend on good mining planning. Some resources can be channelled into development projects, but these must be identified at mine-inception. Leadership that cares and listens to local communities' concerns, rather than prioritising their private or political interests, is critical to turning things around (FG3). A change in leadership practices will require a paradigm shift in the mindsets of leaders and citizens, because it is the citizens who elect leaders into power and give them authority and, therefore, citizens must hold leaders to account.

7.7 CONCLUSION

Settlement patterns tell the story of past and present economic, political, and social conditions and can help to project future settlement development. Settlements are shaped by changing institutional (formal and informal) arrangements that are determined by powerful (economic, political) individuals or groups. The changing rules before and after 1991, the consequences on the settlement patterns, and links to the NIE theory and shrinkage concepts are summarised in Table 7.2.

Table 7.2: Changing rules and consequences on settlements

Rules up to 1991	Main consequences	Rules after 1991	Main consequences	Links to theory
Government				
<ul style="list-style-type: none"> • Enforce apartheid rules aggressively • Mining is a main catalyst for developing other economic activities • Support and subsidise mining companies • Migrant labour system entrenched in southern African practices • Migrant labour is a significant livelihood strategy in southern Africa. • Government (national and local) strategies dependent on mining companies 	<ul style="list-style-type: none"> ➤ Social unrest and political instability ➤ The government is overly dependent on mining companies ➤ Urban sprawl and low-density levels (outside of the compounds) increase ➤ Formalised migrant labour system, influx of Black people in search of jobs to mining area ➤ Informal settlements spring up near mines ➤ Increasing inequality, environmental degradation, anger, conflict and mistrust between government and communities ➤ Weak institutions, weak government ➤ Increasing opportunities for illegal mining 	<ul style="list-style-type: none"> • Repeal apartheid laws. Build a democratic, non-racial, non-sexist society • Formulate and enact new rules to counter past racial and spatial inequalities and social injustices • Relax spatial control regulations and improve the living conditions of poor people • Give Blacks people access to economic opportunities • Appoint the government to control housing delivery. The government delegates housing delivery to the private sector • Provide affordable housing (including rental housing) • Encourage people to participate in and contribute to their housing development • Integrate government development initiatives (introduce integrated development plans) • Build integrated compact cities with high densities and jobs near settlements • Promote cooperative governance and developmental local government. • Dismantle mining compounds and eliminate single-sex hostels 	<ul style="list-style-type: none"> ➤ Mine decline and closure are to be considered in new policies ➤ Dependencies created by mining shift to local municipalities grapple with managing dependencies ➤ Lack of capacity and increased corruption lead to the deterioration of government services ➤ Mining towns and villages in disarray. Hopes shattered ➤ Municipalities decide whether to integrate or demolish mine infrastructure (including houses) ➤ Dwindling municipal tax revenue ➤ Affordable housing pushed to the outskirts of urban centres ➤ The urban sprawl of settlements continues (low densities) ➤ Weak systems of collaborative governance and integrated planning. 	<ul style="list-style-type: none"> ❖ Absence of rules increases uncertainties ❖ Rules are not necessarily set for social good but reflect the interests of the powerful ❖ Social norms are hard to change and influence formal institutions. ❖ Goal dependency – government focused on undoing apartheid laws ❖ Weak and missing institutions cause poverty and underdevelopment ❖ A rule must be implementable and enforceable to prevail as an institution ❖ Mine closure is complex ❖ Shrinkage affects socio-economic patterns. ❖ Shrinkage is a challenge for politicians and urban planners and the tendency is to choose pro-growth strategies to address it

Rules up to 1991	Main consequences	Rules after 1991	Main consequences	Links to theory
		<ul style="list-style-type: none"> • Normalisation to transfer the management of mining towns from mining companies to local government • Promote home ownership • Provide guidelines for structuring spatial planning (Spatial Planning and Land Use Management Act) 		
Mining companies				
<ul style="list-style-type: none"> • Pursue aggressively and influence apartheid rules • Ensure a reliable supply of cheap black labour • Acquire large parcels of land • Abandon mines that are not profitable • Get support and subsidies from the government. • Invest heavily in non-mining activities. Provide infrastructure, not necessarily considering its sustainability when mines close • Build, manage and control mining towns and villages • Provide White mineworkers with 	<ul style="list-style-type: none"> ➤ Excessive influence on apartheid policies ➤ Over-dependency of government and communities on mining companies ➤ Inhumane living and working conditions for mineworkers ➤ Increasing opportunities for illegal mining 	<ul style="list-style-type: none"> • Substantial downscaling as profitability comes under pressure • Transform the mining industry • Provide better accommodation: single-person or family units or option for a living-out allowance • Sell, close, abandon mines, or apply for care and maintenance or rescue when mines are unprofitable • Invest in the best legal teams 	<ul style="list-style-type: none"> ➤ Increased uncertainties ➤ Mistrust increase ➤ Poor stakeholder engagement on mine closure ➤ Workers favour housing allowance, which increases informal settlements around mines ➤ Increased job losses, illegal mining, crime, and violence ➤ Increased number of businesses close 	<ul style="list-style-type: none"> ❖ Rules reflect the interest of the powerful in society ❖ Formal and informal rules are interrelated ❖ Polity determines and enforces formal rules ❖ Bounded rationality leads to uncertainty and opportunism. Uncertainties increase transaction costs ❖ Informal institutions are embedded in beliefs, shape human choices and determine economic activities in a society. ❖ Uncertainties increase transaction costs and reduce cooperation and credible commitments

Rules up to 1991	Main consequences	Rules after 1991	Main consequences	Links to theory
company-owned houses • Provide Black mineworkers with single-sex hostels in mining compounds				
Communities				
<ul style="list-style-type: none"> • Fight apartheid rules • Fight to improve living and work conditions • Communities are overly dependent on mining companies • Informal settlements grow, not stop, because they provide cheap labour. 	<ul style="list-style-type: none"> ➤ Disempowered, disgruntled. Society is becoming politicised ➤ Broken relationships ➤ Increase in vigilantism ➤ Civil society continues to mobilise for struggles to achieve freedom and to change apartheid laws ➤ Closure is not anticipated, perceived as a myth, and not taken seriously ➤ Mistrust of government and mining companies ➤ Communities are not participating in mine closure processes 	<ul style="list-style-type: none"> • Advocate for new laws to pursue equality, justice, and freedom • High expectations for better access to economic opportunities. • Loss of jobs due to closure. Seek alternative livelihood strategies, for instance, illegal mining • Informal settlements are a safe option, considering persistent mine decline and closure. People hope mine will re-open • Corruption is a way of gaining social and political power and avoiding/influencing rules • Communities feel abandoned by mining companies and betrayed by the government • Communities blame political leaders and are increasingly involved in vigilantism and efforts to reverse decay and decline • Want to engage in strategic discussions on mine closure to stop corruption and crime • Divisions in communities increase 	<ul style="list-style-type: none"> ➤ Increase in mistrust and power imbalances ➤ Increase in poverty and unemployment ➤ From high expectations to living with decline ➤ Closure is not considered in new rules and plans ➤ Informal settlements grow, land invasion, crime, and social unrest increase ➤ Increase in vigilantism ➤ Labour migration persists ➤ Anger and disappointment in host communities affect mining operations 	<ul style="list-style-type: none"> ❖ Path dependencies: migration to mines continues even when mining is declining ❖ Informal institutions influence formal rules ❖ Formal institutions may change quickly, but informal rules change slowly ❖ Beliefs and social norms are powerful and deep-rooted ❖ Societal myths matter ❖ When corruption is prevalent in a society, there will be attempts to frustrate the efforts of honest law enforcers ❖ Weak institutions impede economic growth

Before 1991, the predominant rules were segregation, mining villages, migrant labour, compound living and an over-dependence on mining companies. Settlements sprawled to promote segregation. There were no rules regulating mine closure, and communities and mineworkers could hardly influence mining processes and settlement patterns. The end of apartheid raised hopes for socioeconomic change. This chapter highlighted the complexities of managing settlements in the context of mine closure. Post-apartheid policies created expectations of better living conditions in poor communities, but hopes have been shattered, and the postapartheid period coincided with an increase in mine decline and closure, leading to the shrinking local economy (see Chapter 5 and Chapter 6). Institutional changes, such as relaxing spatial control regulations, have not achieved the desired compact settlements but have, instead, often worsened conditions.

The chapter reported on the poor living and work conditions during the apartheid era and high hopes of improvement post-apartheid. New policies that were introduced focused on undoing apartheid in whatever way possible, and did not consider the consequences of mine decline and closure. Policies assumed that the economic growth trajectory would continue, and the priority was on promoting growth and redistribution and providing previously disadvantaged communities with access to economic opportunities. The intention was to build compact, affordable settlements close to jobs, with easy access to public infrastructure (schools, hospitals, roads). However, the strategies adopted have led to continued sprawl and poor communities being pushed to the outskirts of the urban areas. The failure of postapartheid strategies has mainly been attributed to mistrust and weak collaborative governance of stakeholders, lack of government capacity, and corruption. Mine decline and closure have exacerbated the situation, with job losses, rising poverty and unemployment levels, along with crime (including illegal mining), social unrest and conflict.

Mine decline in the West Rand has disrupted livelihood strategies, distressed communities, and negatively affected settlement patterns. An overdependency of communities and municipalities on mining companies continues. NIE attributes the failure of development initiatives to weak institutions. Besides enacting appropriate laws to respond to societal problems, the laws must be effectively enforced, as highlighted in Chapter 6. Also important are effective enforcement mechanisms for institutions to achieve the desired objective and collaborative governance that builds trust and motivates all stakeholders to ensure successful closure processes. Inspirational leadership that motivates all parties to contribute to the goals that have been set is also critical.

Chapter 2 identified two categories of institutions essential for economic growth: institutions that promote economic exchange and encourage trust, and those capable of influencing powerful actors, including the state, and protecting people's rights and private property, including freedom of speech, electoral rules, and an active citizenry that monitors government (Shirley, 2005). However, in the West Rand, the first category is absent, and the second is not fully available.

As noted by Chapter 3, planning for decline is complex and challenging for local municipalities. The literature on NIE, shrinkage and mine closure highlights the critical role of effective collaboration in ensuring economic growth and reform. This chapter (like Chapter 6) showed that governance arrangements ought to be appropriate for the local context, and there should be meaningful engagements with civil society to build mutual trust, find appropriate responses, and define the future path. Leaders who embrace decline as integral to finding solutions and forming meaningful engagements with stakeholders are critical. On the one hand, leaders ought to be strategic thinkers with sound logic and reason, who can understand the nuances of the challenges faced by different groups, and on the other hand, they must be mindful, intuitive, empathetic, and able to inspire authentic engagement and collaboration. These two leadership competencies are necessary to heal and strengthen individuals and affected communities, address shrinkage challenges and build sustainable communities.

Appropriate strategies for the challenges described in the chapter embrace decline as part and parcel of forming meaningful collaborations, and finding new ideas and a new development path. Ensuring that citizens are actively involved in the processes, recognising the different groups and the uniqueness of the West Rand and the political dynamics, and promoting a just society is critical for forging a way forward. The next chapter will overview the study's main findings and make recommendations.

CHAPTER 8: KEY FINDINGS, RECOMMENDATIONS, AND FUTURE RESEARCH

8.1 INTRODUCTION

This chapter will discuss the key findings, highlight the significance of the study and make recommendations. The study set out to understand the social impact of mine closures in the West Rand, and the objectives were to:

- i) Explain the shrinking cities phenomenon, its impact on economies, and proposed responses;
- ii) Analyse the social aspects of mine closure and highlight opportunities and challenges;
- iii) Use NIE and shrinking cities frameworks to understand the institutional environment and institutional change;
- iv) Critically analyse the decisions that have been taken by the key role players (communities, mining companies, government) in response to mine closures within the NIE framework;
- v) Develop a conceptual and theoretical understanding of mining closure and mine closure planning with NIE; and
- vi) Draw lessons, locally and from around the globe, and make policy recommendations.

This chapter will start by giving a brief overview of the thesis. The second part will discuss the main findings, while the third part will highlight the significance of the study, make recommendations and identify future research areas.

8.2 OVERVIEW OF CHAPTERS

Chapter 1 introduced the study and outlined its objectives and research methods. Mine closures pose a critical challenge for the mining industry, governments, and communities. The thesis investigated the social impact of mine closures in the West Rand. Two conceptual frameworks are used: the NIE and the shrinking cities frameworks. In the thesis, I view mine decline as institutional changes within NIE.

Chapter 2 introduced NIE, the role of institutions (formal and informal) and their enforcement, as the theoretical underpinnings that provided the narratives of key actors' behavioural attributes within the context of mine decline and closure. Without rules, humans are opportunistic, manipulative, and exploitative. Institutions set the tone of societal behaviour and determine the cost of exchange and production. Good institutions allow society to engage in mutually beneficial exchanges and build an appropriate environment for economic activity (social, economic, and political). The chapter explained institutional concepts such as transaction cost, property rights, contracts, rules, regulations, governance, motivation, and institutional change. There was reference to complex institutional problems, possible solutions and the shortcomings of NIE. Chapter 2 concluded that institutions matter, play a central role in development, influence organisational arrangements, and can promote or impede economic growth. Considering that most NIE studies originate in the Global North, it was important to adapt the concept to circumstances in the Global South.

Chapter 3 analysed the literature on shrinking cities from a global perspective. Shrinkage is a multidimensional, complex, and unique process in locations where it does occur. Shrinkage challenges urban practitioners who tend to be biased towards growth. The shrinking cities framework emphasises the need to plan for decline through participatory processes and strategies. Leadership should understand the complexities, drive collaborative governance, empathise with different interest groups and enable citizens to challenge power imbalances. From an NIE perspective, shrinkage is induced by changes in internal and external factors and refers to institutional change. Shrinkage creates its circumstances and is a rule (in the same way that growth is a rule). Thus, addressing shrinkage requires understanding of local circumstances to align formal and informal institutions. This alignment ensures that rules align with the host community's embedded values, customs and practices. Therefore, when information is incomplete, misunderstanding arises of situations, and individuals' responses may hinder productivity and economic growth.

Chapter 4 analysed the literature on mine closure. The chapter focused on the complexity of mine closure, the social aspects of closure, social actors, trends, regulations and challenges. A variety of regulations and obstacles block mine closures in South Africa. Within the NIE framework, mine closure regulation provides guidelines for environmental rehabilitation and social redress. Institutions play a central role in mine closure, by controlling human behaviour, increasing predictability and, ultimately, enabling the cooperation of people and organisations. The chapter

highlighted South Africa's abandoned mines as a major source of environmental and social impacts that distress communities, and which need to be adequately rehabilitated. The mining industry's future depends on how well it manages mine closures.

Chapter 5 investigated the nature and scale of mine decline in the West Rand. The chapter explained that the mine decline and closure has severely affected the local economy, and has contributed to increased unemployment, more informal sector employment, expansion of informal settlements, higher crime levels, decreased municipal finances and notable demographic changes. Mine decline can be viewed as institutional change that affects, among other things, the performance of the local economy, settlement patterns and societal behaviour.

Chapters 6 and 7 presented the empirical work, and analysed the responses provided in a range of qualitative interviews with officials from government/municipalities, mining companies and CSOs, CSO focus group discussions and deliberations at a Bench Marks Foundation conference on mine closure, which took place in October 2022. The two chapters referred to literature to understand institutional responses to mine closure over the past three decades. Chapter 6 analysed stakeholders' views on how institutional changes in response to mine closure have impacted the local economy and highlighted the unintended consequences of the changing rules. The chapter reported that changing rules did not achieve the desired societal transformation. Chapter 7 focused on the impact of institutional changes on settlement patterns. The disruption caused by the mine closure, combined with postapartheid rules and the impacts of relaxing spatial control regulations, were discussed. The chapter highlighted the unintended consequences of the postapartheid rules and their failure to achieve the intended goals.

8.3 MAIN FINDINGS

This section overviews the study's main findings by focusing on theoretical and empirical contributions.

8.3.1 Mine closure reinforces weak institutions

The NIE theory contributes to our understanding of mine closure. Institutional change to reverse apartheid legislation and ensure adequate local benefits coincided with increased mine closure in the West Rand. The institutional changes associated with creating a postapartheid society created high expectations. Although the spatial planning institutions were strong, mining institutions were weak during the apartheid era. For example, it favoured profits over people and

the environment, and mine closure regulations were limited. When the postapartheid regime introduced mine closure regulation, it was poorly implemented because of weak enforcement mechanisms, lack of capacity, and corruption. So, after 1994, mine closure exacerbated the weaknesses in the institutional environment. The effect of institutional change in mine closure in a weak, compared to a strong, institutional environment is illustrated in Figure 8.1.

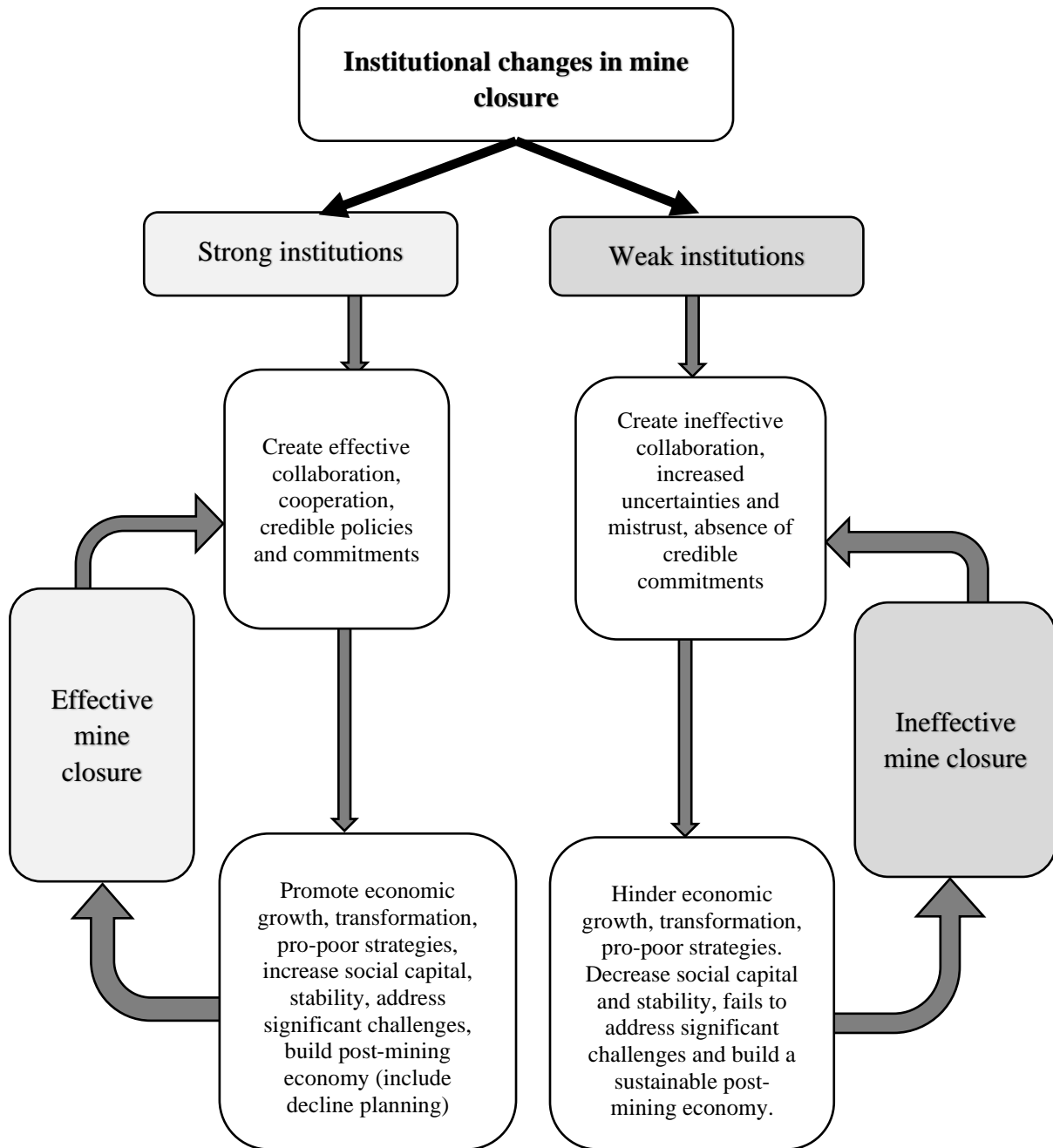


Figure 8.1: Mine closure and institutional change

Source: Researcher's compilation

The study highlighted the critical role of institutions in influencing human behaviour and development. Chapter 2 described institutions and their enforcement as constraints shaping human interaction (refer to North, 1990), by controlling the environment, creating certainty in society and enabling credible commitments. Societies need institutions to maintain moral behaviour and fair standards and minimise conflict, greed and social problems. Generally, a relationship exists between the security of property rights, the rule of law, greater trust and better economic outcomes. As illustrated in Figure 8.1, strong institutions promote economic development, efficiency and societal stability. Transaction costs for doing business (exchange) are vital, and economic actors seek opportunities to reduce them. Both rules and their enforcement must be strong to ensure economic development.

The apartheid government introduced and enforced spatial segregation and rules favouring the mining industry. Examples include institutionalised migrant labour, strict control over land use, compounds for men and mining villages. There are examples where the lack of rules favoured the mining industry. For example, mining companies had little responsibility in relation to closing mines. In the West Rand, minerals are deep underground, making the industry capital intensive (Chapter 4). Hence, large mining companies dominated the industry through government rules, which helped these companies to employ cheap labour, control mining towns and villages and exert their power on local authorities (in the case of villages, playing the role of local authorities). This created mistrust between the government, communities, and mining companies. In addition to the mistrust, communities became dependent on mining. The postapartheid government has tried to reverse the apartheid rules. For example, there is less enforcement of spatial planning regulations (Harrison & Todes, 2015), while local communities have to benefit from mining operations. However, changing these rules coincided with mine closures. The postapartheid government's fixation on undoing apartheid rules and creating local benefits for communities meant that mine closure (outside of the environmental implications) received inadequate attention. These new postapartheid rules created unintended consequences (see Chapters 6 and 7).

The postapartheid rules emphasised stability and local benefits and attempted to reduce the dominance of mining companies. The normalisation of mining villages was in line with these rules. However, the evidence shows mixed outcomes (see Chapter 7). Local municipalities could not manage normalisation. For example, it was difficult to integrate infrastructure. Consequently, normalisation created new social problems and crime. Selling to a private owner seldom creates

benefits, and contributes to ungovernable mining villages. Normalisation makes sense for mining companies, because they dispose of their liabilities. But mine closure disrupted the postapartheid rules and local benefits that normalisation was intended to create.

The postapartheid policies emphasise home ownership, which is closely associated with normalisation. However, this approach ignores the possibility that a mine could close. The national government promoted homeownership to ensure stability, create wealth and assets and transform society. However, having a home in an area without economic opportunities hardly suggests that the home is an asset.

Additionally, where the government did establish rules, enforcement has been weak. According to the NIE framework, mine closure concerns institutional change related to power dynamics. Individuals consider the costs and benefits of a proposed institutional change based on their beliefs and the information at their disposal (bounded rationality). Depending on their interests, actors may change or maintain the prevailing institutions. Or, when corruption is prevalent, they may attempt to frustrate the efforts of honest law enforcers by weakening the enforcement mechanisms. For example, the postapartheid government introduced comprehensive mine closure legislation (see Chapter 4). However, the government hardly enforces the rules. The lack of enforcement has two consequences: first, mining companies avoid the costs of complying with mine closure, resulting in illegal mining. Furthermore, many mining companies opt for care and maintenance rather than closure (see Chapter 5). This approach allows mining companies to buy time to sell or reopen when commodity prices permit. However, it also allows illegal miners to access mines. Some respondents even believed this was done deliberately to encourage illegal mining (another form of mistrust). Illegal mining activities are more prevalent where formal mine closure is protracted, delayed by the government, or falls under pre-2002 legislation. The consequences of historical legislation continue, while the lack of enforcement after 2002 has contributed to illegal mining. The lack of enforcement has created social disorder and high crime levels. Corruption and a lack of government capacity or political will contribute to the lack of enforcement.

Pre- and postapartheid institutions have been weak in fostering economic growth or finding alternative economic approaches. At the same time, the original weakness of institutions is mainly attributed to the government's determination to sustain apartheid rules, institutional weaknesses after apartheid mainly emanate from the gaps in the rules, the lack of capacity in government to enforce rules and eliminate corrupt practices. Formal rules may change quickly,

but informal rules change slowly. Thus, the culture of mistrust lingers postapartheid and communities continue to bear the brunt of the weak institutions. Power dynamics is at the heart of institutional changes, determining the nature of relationships and accountability in mine closure processes.

8.3.2 Towards a conceptual framework using NIE

Two categories of institutions for economic development are emphasised by NIE: institutions that promote economic exchanges and those that influence actors (including the state). The West Rand is grappling with the complex phenomenon of mine closure and related power dynamics, which is exacerbated by high levels of poverty and unemployment. Each stakeholder is constrained by challenges that limit their ability to participate in the mine closure process (a form of economic change). NIE and shrinking cities literature emphasise the importance of collaboration and building trust (see Chapter 4 and Chapter 6). However, mine closure makes meaningful collaboration difficult. Figure 8.2 summarises the constraints for each stakeholder and identifies the institutions required to contribute to mine closure, the critical drivers for effective collaboration and the crucial aspects of mine closure processes. At the heart of poor mine closure practices are mistrust, power imbalances and an inability of the stakeholders to collaborate effectively. The rules must be adhered to, and the system needs to be stronger to enforce them.

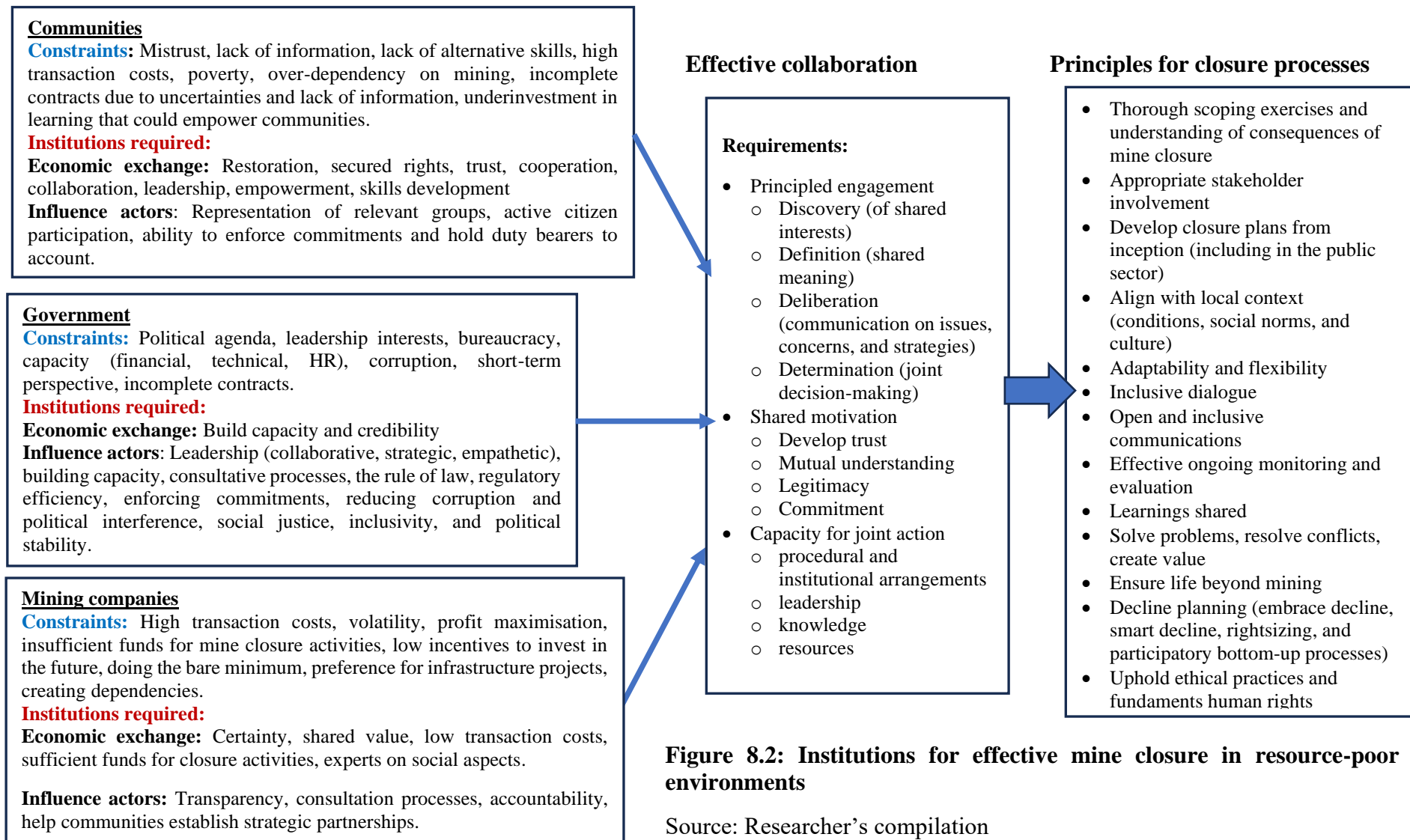


Figure 8.2: Institutions for effective mine closure in resource-poor environments

Source: Researcher’s compilation

Figure 8.2 illustrates the iterative behaviour among companies, government representatives and community stakeholders, which is driven by the conflicting interests of the three stakeholders. For example, communities depend on closure rules that fall outside their ambit. Mistrust constrains community action and communities find it difficult to trust closure-related information provided by the government or mining companies. The inability to access relevant information, an under-investment in learning and a lack of skills to work in alternative industries increase transaction costs and make closure participation difficult. Communities require institutions that promote economic exchanges such as ensuring secured rights, trust, cooperation, collaboration, empowerment, skills development and leadership. Strong political institutions can help influence actors, ensure fair representation of relevant groups, build active citizen participation, enforce commitments and hold duty bearers to account. Mine closure as a form of institutional change has disrupted many of these rules.

While mining companies have the financial resources, information, expertise, and *de facto* political power, they experience uncertainty. For example, they face volatile global markets, competition, labour and political instabilities, technical innovations in the industry and the inability to predict when the exploitation of mineral resources will become unprofitable. The shortage of adequate information means mining contracts are incomplete and sometimes unenforceable, which opens the door to opportunistic behaviour. Mining companies have large establishments with high overheads, which exerts pressure to maintain profitability. Chapter 6 reported that the transaction costs are high due to mistrust and lack of information, and there are few incentives to invest in the future. Mining companies are focused on profitability, investing in legal support and taking advantage of regulatory gaps. One example is the tendency to place mines under care and maintenance rather than closing them. Mining companies would benefit from a predictable institutional framework. For example, a clear mine closure process could be a good starting point. Institutions for effective mine closure should compel mining companies to be accountable, provide value to communities, provide adequate information to inform closure, facilitate consultation processes, and help communities establish strategic partnerships.

Chapter 6 emphasised the importance of effective collaboration in mine closure processes. Effective collaboration aligns with the NIE theory by highlighting institutions as enablers of predictability, economic exchange, commitments and collaborations. To enable actors to collaborate effectively, even if they are diverse and have competing agendas, the literature

identifies three key drivers: principled engagement, shared motivation, and capacity for joint action. The greater the uncertainties, the greater the need for detailed, complex rules to compel actors to collaborate. The challenge is exacerbated when trust levels are low, poverty is high, and alternative economic activities are few. This study found that the lack of rules and enforcement for these roles adds cost or leads to simple withdrawal from mine closure processes.

The study shows that power dynamics is a critical determinant of the direction of institutional change in mine closure. The government's ability and commitment to ensure effective mine closure will determine the success of collaborative efforts. The capacity of communities to hold the duty bearers to account will determine the government's actions and effectiveness. Mine decline has severely distressed communities

Chapter 2 reported that institutions play a critical role in minimising conflict, greed and other social problems, by creating stability and economic growth. Rule changes can either promote or impede stability and economic growth and may have unintended consequences (see Section 8.2.1). The research shows that colonial and apartheid rules have disrupted communities and they carry pain from the past. Among other effects, apartheid policies destroyed trust between the stakeholders, increased transaction costs of exchanges (social, economic, political) and made collaboration difficult. Mine closure eroded trust further. In Chapter 4, I indicated that establishing collaboration in the context of economic decline and shrinking is difficult.

Chapters 5, 6 and 7 showed the social disruptions associated with mine decline and closure (institutional change from growth to decline). Chapter 6 illustrated how the economy has been severely affected, ranging from community frustrations and sentiments of unfairness, anger, and despair from "what the government has allowed" to the unsightly 'ghost' towns, environmental hazards, and increased social unrest. High levels of poverty, unemployment and crime related to illegal mining and uncertainty about how the land will be rehabilitated cause distress. Communities are convinced that rehabilitation funds are either unavailable, meagre, or part of corrupt practices. Chapter 7 described how mining villages and towns are in disarray and how rules meant to improve living conditions have led to informal settlements and poor communities being located far away from economic opportunities. Mine closure as a form of institutional change continues to erode the informal rules, while applying many formal rules was impossible. For example, many problems result from the inability of government and

mining companies to apply the new mine closure legislation. This has created illegal mining, which has resulted in many social problems.

In addition to the inability to apply basic rules, there is a failure to accept shrinking as a form of institutional change. Politicians and urban planners tend to prioritise growth strategies, making it difficult for shrinking cities to adapt to new circumstances. This tendency is notable in strategies to revitalise and diversify the local economy. The shrinking cities framework acknowledges the complexity of planning for decline and advocates for creative strategies, such as smart decline and rightsizing (see Chapter 3). It emphasises the importance of bottom-up planning, active citizen participation, and social justice. Shrinkage ought to be embraced as a form of institutional change, and the uniqueness of the shrinking city recognised to restore broken relationships and craft a new path that is appropriate for the local context.

8.3.3 Communities attribute shrinkage to weaknesses in the democratic dispensation

Postapartheid mining legislation emphasises the importance of good mine community relations, so that communities can benefit mining activities. Furthermore, postapartheid planning legislation and policy provide a different framework for planning. However, neither postapartheid mining nor planning policies consider decline and closure. The inability of these policies to consider the rule changes associated with mine closure has contributed to economic, social, structural, environmental and demographic problems. Mine closure regulation and the transition to democracy raised people's expectations that the new rules would address past imbalances and create a wider benefit for mining (see Chapter 6). High hopes have transformed into despair as economic growth declined due to mine closure.

Communities blamed the democratic dispensation for the decline of socioeconomic conditions. Local communities believe in the government's supreme power and that it must prevent closures. Hence, its perceived failure to intervene appropriately refers to an expectation of the community of better rules. Communities viewed the government's inability to prevent mine closures as the root cause of joblessness, deterioration of municipal infrastructure, collapse of service delivery and increased crime. Most respondents viewed the deteriorating circumstances as a result of the postapartheid government not caring for them.

8.3.4 Conflicting views on why mines close: disputing the reasons for institutional change

Literature on mine closure (Chapter 4) outline several interrelated reasons why mines close, ranging from premature closure (before depletion of ore reserves) to changes in market conditions, financial viability, social upheaval or political instability. When closure regulation is absent or inadequate, companies sometimes abandon mines, or owners opt to sell the mine ('pass the parcel') to less well-resourced operators, thereby transferring the burden of closure. Owners may opt for care and maintenance, which is another (incomplete) form of closure.

Perceptions of why mines close were diverse, due to the complexities of mine closure processes, a lack of information and mistrust. Mining companies say mines close when they are no longer profitable. Government respondents acknowledged the decline in mining, but most could not view it as the new rule and ignored it by planning for growth. Community respondents said these reasons for the decline of mines were false and an excuse for ulterior motives. Communities viewed mines under care and maintenance as problematic, because they created uncertainty and job losses, disrupted livelihoods, and became grounds for illegal mining. Community respondents believed mines did not have to close and could reopen if there was political will. They said mines could not claim that mining was not profitable when informal miners thrived. Communities believed they were treated unfairly, ignored and excluded from closure processes, which created tensions.

Although mine closure is inevitable, mistrust and the lack of transparency, poor communication, and lack of information will lead to conflicting perceptions of reality. The diverse perceptions prevent stakeholders from listening to each other and acknowledging the real problems.

8.3.5 Overdependency of communities and municipalities on large mining companies continues and pro-growth strategies are used to counter decline and closure

Mining creates long-term dependencies and mine closure disrupts these dependencies because of the inability to create alternative livelihoods (see Chapter 4). An over-reliance on mining companies hinders the local community's ability to drive alternative development initiatives. This dependency explains the magnitude of the social disruption and distress that mine decline

and closure have caused local communities. Respondents concurred that municipalities are increasingly struggling to provide services to their residents, mainly because of the dwindling tax revenue related to mine closure. However, respondents showed that the government was desperately trying to find solutions, mainly focusing on growth and expansion strategies to attract investments, create jobs, and revitalise the battling local economy. This largely contrasts with the literature on shrinking cities that requires careful consideration of what closure means.

8.3.6 Social and labour plans represent weak rules and are unsuitable for closure

Historically, mining companies provided CSR. Postapartheid policy requires a more structured approach, through SLPs (see Chapter 4). This change from CSR to SLP is a rule change in how mines interact with communities. The historic investments provided directly to communities by mining companies are now channelled through collaborative planning with local municipalities. Various concerns exist in this respect.

Firstly, SLPs respond to mining growth and not decline. The change from CSR to SLP means that communities moved from depending on mining companies to depending on municipalities, which are themselves affected by mine closure. The shift made managing dependencies created by mining operations more difficult.

Secondly, although SLPs are a form of social licence (not a legal contract), the lack of enforceability is a problem. NIE theory states that a rule must be implementable and enforceable to prevail. Mine closure processes seldom include all stakeholders and mining companies largely determine the outcomes. Neither SLPs nor mine closure plans are public documents. Chapter 6 reported that SLPs are poorly funded, consultant-driven, progress slowly and lack skills (implementation and governance) and monitoring capacity. Mining companies can cut SLP funding and abandon the projects without being held accountable. Community respondents expressed scepticism about implementing SLPs and seldom reported any tangible impact. SLPs are viewed as weak rules that are ineffective and unsustainable.

Thirdly, SLPs require effective collaborative governance, and assumes joint planning, mutual accountability and transparency. NIE theory highlights the important role of institutions in enabling cooperation and credible commitments. South Africa's history of colonialism and apartheid and the resulting power imbalances, coupled with persistently high levels of poverty and unemployment, make collaborative governance difficult. Typically, closure deliberations exclude mine-hosting communities. Respondents felt that drivers of collaborative governance,

namely principled engagement, shared motivation, and capacity for joint action, were missing. Without these drivers, mistrust increases and relationships deteriorate.

Fourth, SLPs must align with the IDP of the municipality. But this is seldom the case. Several factors make this difficult. IDPs are politically driven and focus on five years, while SLPs should have a long-term view. However, the link with the IDP gives SLPs short-term horizons. Many IDPs are weak and not implemented. The NIE theory acknowledges the power interplay in institutional changes, noting that the ‘powerful’ determine the institutions that prevail. The SLPs have been vulnerable to government interference, frustrating the communities’ intentions and involvement in closure processes. Respondents highlighted that poor alignment between IDPs and SLPs results from poor communication, overly politicised communities, the lack of consultation of affected people, misinformation and poor facilitation of stakeholder discussions and agreements. These issues raise false hope and make managing community expectations difficult, increase uncertainty, mistrust and transaction costs and reduce chances of implementation.

Chapter 6 reported that, while the SLP concept may be suitable for stable or growing mining societies, a government requires a new planning framework to meet the requirements of poor and declining environments such as the West Rand. The NIE theory attributes the lack of socioeconomic growth to weak institutions and enforcement mechanisms. The weak institutions manifest in communities that cannot influence mine closure processes and a weak government that struggles to act as a regulator, enforcer of rules and protector of rights.

8.3.7 Gaps in mine closure regulations enable opportunistic behaviour

Although the literature reviewed showed that South Africa has developed numerous mine closure policies and legislation, several gaps have been identified, and the regulatory system needs to be revised. NIE scholars attribute the inability to reform and the lack of socioeconomic development and land rehabilitation to weak institutions. The gaps in the regulation and weak enforcement of existing laws prevent the government from effectively leading mine closure and building resilient and sustainable mining communities. The inadequacies of the system are mainly attributed to the government's failure to strike a balance between its conflicting roles, namely, enforcing compliance while promoting the mining industry and protecting human rights.

Also, South Africa's mine closure regulation does not apply to old (abandoned before 2002) or dissolved mines. Mining companies simply abandon mines, which allows criminal activities to flourish. Consequently, the government is liable to clean up the mess. As noted in Chapter 6, the inability to apply new mine closure rules to old mines has created a new informal rule of criminal activity. Furthermore, the socioeconomic aspects do not get the recognition they deserve and are poorly regulated and managed.

8.3.8 Relaxation of spatial controls has not improved densification, nor stopped urban sprawl

Mining has always had a significant impact on settlements. Marais (2023) explains that addressing past injustices became a goal dependency in mining areas of South Africa when postapartheid rules aimed to address the spatial segregation created by apartheid. Hence, post-1994 policies focus on dismantling mining compounds, promoting home ownership, opening towns (or normalising existing company towns) and ensuring equality between Black and White mineworkers. The negative impacts of the relaxation of spatial controls (land use controls, closing single-sex hostels) in the mining context coincided with mine closure. The postapartheid rules did not consider the implications of decline, and mine closure made enforcement difficult. One of the consequences is continued segregation.

The closure of mine compounds meant that mineworkers had to become homeowners, look for rental options or settle in informal settlements. Thus, the movement out of compounds (either because of losing a job or because the compound was closed) has contributed to urban sprawl, increased informal settlements and poorer housing conditions for mineworkers – the sprawling settlements conflict to create higher densities in the postapartheid period.

The democratic government embraced the concept of homeownership. The housing asset had to become a tool for economic transformation and a benefit by appreciating. This would increase the demand for housing finance. Mine workers opted for a living allowance to acquire houses. Homeownership was expected to reduce migration and instability by creating place attachment and wealth, developing stability and transforming society. However, mine closures forced some homeowners to sell or rent, with many moving to informal settlements. Furthermore, the shrinkage of the local economy meant that some people owned housing assets in places where the economy was not viable, thereby defeating the purpose of growing wealth.

Postapartheid housing policies adopted a subsidy model to address housing challenges. These subsidies have reinforced lower densities. Well-located land is costly, so housing for poor households has been built at the periphery of cities, far from socioeconomic opportunities, thereby contributing to urban sprawl. The growth of informal settlements due to mine closure has reinforced low densities and land expansion under municipal control.

Normalisation was supposed to reduce the dominance of mining companies and promote collaboration between mining companies and local governments. Normalisation was favoured by both the government and the private sector. However, normalisation released mining companies from their long-term responsibilities. Mining companies avoid the long-term consequences of mine closures by providing people with titles or selling off their villages. Individuals and local municipalities have taken over the dependencies created by mining. Closure means declining municipal revenue and local municipalities carrying increased burdens due to growing poverty. This shift in responsibilities means local communities and authorities have to engage with powerful multinational mining companies, which poses a capacity challenge.

Postapartheid rules have failed to build the promised compact integrated settlements and have had unintended consequences. Increased uncertainties, goal and path dependencies (historical experiences), social norms, and the envisaged high transaction costs have created new challenges. Institutional changes coincided with increased mine decline and closure, which have exacerbated the negative consequences. Despite the relaxation of spatial control regulations, today even more poor households find themselves on the periphery of the cities and in poor housing conditions in the informal settlements.

8.3.9 Informal rules are a powerful influence of mine closure and dominate formal rules

Informal rules are a powerful influence on mine closure processes. NIE scholars argue that informal rules are critical in any society, and have the ability to influence formal institutions, mutual trust, power relations, stability, economic exchanges, resource allocation and development policies and strategies. Chapter 2 noted that informal institutions can replace, undermine, and reinforce formal institutions, irrespective of whether the formal rules are weak or strong. Furthermore, formal institutions take their character from informal institutions (North, 1990).

Weaknesses in the institutional environment (including enforcement mechanisms) have increased uncertainties and opportunistic behaviour, which are visible in social unrest, illegal mining, corruption and other crimes. Weak institutions, exacerbated by shrinkage (in the local economy) caused by mine closure, led to informal institutions replacing some formal institutions. For example, although illegal mining is prohibited by law, it has continued to grow, and is viewed by some people as the only source of livelihood because of the weak enforcement of closure regulation. Chapter 6 reported on cases where communities opted for vigilantism to curb illegal mining, driven by the belief that governments, particularly politicians and the police, were unwilling to enforce law and order. Mine closure contributed to the expansion of informal settlements and job losses led to the growth of informal sector activities. Mistrust and the lack of transparency about mine closure have increased misinformation, land invasion, social unrest and crimes (see Chapter 5). Some individuals (representing all stakeholders) are a law unto themselves because of the weak institutional environment.

Chapter 2 explained that the conditions prevailing in the institutional environment will determine the nature of strategies that emerge and flourish in an economy. A weak institutional environment does not foster economic growth. Chapter 3 highlighted the shrinkage complexities, which were illuminated further in Chapter 4, which analysed the nature of mine closure. The literature shows that institutional arrangements must facilitate complex processes. However, mine closures are complex, and are exacerbated by South Africa's colonial and apartheid history and current high levels of poverty. Planners and governors must understand the uniqueness of each shrinking city and the importance of understanding the causes and impacts of shrinkage. The social impact of mine decline in West Rand is huge (Chapter 5) and stakeholder responses (Chapters 6 and 7) indicate that West Rand is leaning towards growth and expansion strategies to address the challenges.

Chapters 2 and 3 explained that each society has a unique institutional environment that is shaped by its formal and informal rules. Societal behaviour (incentives, choices, actions) is embedded in values, beliefs and social norms, which influence societal views of the world, how economic transactions/exchanges are carried out, and preferred development strategies. Weak institutions are exacerbated by mine decline and closure, which undermine and replace formal West Rand rules. The implication is that the conflicting interests require a connective rendezvous that addresses the fragmentation, to achieve a policy-informed transformation of collective engagements by reforming planning and land-use policy in mine locations (villages,

towns, and cities). This is critical for attaining SDGs, hence, the recommendations in Section 8.4.

The analysis showed that rule (formal or informal) changes may differ over time, but the social consequences (interrelated) are the same, as illustrated in Table 8.1. Institutions are about power dynamics. Communities are the weak stakeholders and should be protected by the institutional environment. Weak institutions hurt society and impede economic growth and political stability.

Table 8.1: Social consequences of rule changes in mine closure

Rule changes in mine closure	Consequences of mine closure
Formal Rules	
Insufficient emphasis on social impacts	<ul style="list-style-type: none"> ➤ Social impacts ignored or poorly addressed ➤ Poor service delivery ➤ Businesses close, leading to job losses ➤ Out-migration of skilled people ➤ Dwindling municipal finances ➤ Weak law enforcement ➤ Crime and corruption increase ➤ Mistrust increases ➤ Social unrest ➤ Weak/divided community structures ➤ Distressed communities
Increase in local government responsibilities	
Unfunded mandates for local government	
Adapt strategies not appropriate for the local context	
Insufficient support for local government	
Weak enforcement of closure regulation	
Exclusion of communities from closure activities	
Insufficient monitoring and evaluation of closure processes	
Pursue pro-growth strategies to address the decline challenges	
Insufficient decline planning	
Insufficient rehabilitation funds	
Informal Rules	
Poorly organised communities	<ul style="list-style-type: none"> ➤ Social impacts ignored or poorly addressed ➤ Poor service delivery ➤ Businesses close, leading to job losses ➤ Out-migration of skilled people ➤ Dwindling municipal finances ➤ Weak law enforcement ➤ Crime and corruption increase
Mistrust	
Corruption	
Social unrest	

Lack of effective collaboration	<ul style="list-style-type: none"> ➤ Mistrust increases ➤ Social unrest ➤ Weak/divided community structures ➤ Distressed communities
Insufficient information	
Mines are abandoned	
Illegal mining	
Misinformation	

Source: Researcher's compilation

8.4 RECOMMENDATIONS

This section will present recommendations for stakeholders (government, mining companies, communities) and other relevant public and private sector officials, CSOs, development practitioners and activists. The interrelated key recommendations proposed for the findings are summarised in Table 8.2.

Table 8.2: A summary of findings and key recommendations

Main finding	Key recommendation
Mine closure reinforces weak institutions	The government should strengthen its capacity to enforce mine closure regulation, enable credible commitments, eliminate corruption, and build communities' trust.
Towards a conceptual framework using NIE	Strengthen the institutional environment to ensure genuine engagement and compel stakeholders to collaborate to achieve effective mine closure.
Mine decline has severely distressed communities	Facilitate bottom-up participatory planning processes involving all stakeholders, adapting appropriate decline planning strategies to address negative consequences of shrinkage and crafting a new path that is appropriate for the local context.
Communities attribute the shrinkage of the local economy to weaknesses in the democratic dispensation	Compel mining companies to provide timely closure information and plans to stakeholders, enforce law and order, and adapt strategies to gain community trust.
Conflicting views on why mines close: disputes over the reason for institutional change	Protect community rights, strengthen local leadership, facilitate participatory processes and enable meaningful stakeholder engagements in mine closure processes.

Main finding	Key recommendation
An overdependency of communities and municipalities on large mining companies continues, and pro-growth strategies used to counter decline and closure	Shift from pursuing growth and diversification as the primary goal to embracing decline as an integral part of creating sustainable livelihoods and settlements.
The SLPs represent weak rules and are unsuitable for closure	With the help of CSOs, communities should reflect on the SLP concept, explore models in other developing countries and develop a concept appropriate for the local context.
There are gaps in mine closure regulations; the gaps aid and abet criminal behaviour	Strengthen institutions regulating mine closure in South Africa.
The relaxation of spatial controls has not improved densification, nor stopped urban sprawling	The government should prioritise creating well-located low-cost housing, which should include providing developers (private sector) incentives to build more compact housing developments.
Informal rules are a powerful influence of mine closure and dominate formal rules in society	Strengthen the moral fiber (informal institutions) of society.

Source: Researcher's compilation

8.4.1 Government should strengthen its capacity to enforce mine closure regulation, enable credible commitments, eliminate corruption, and build trust with communities

Weak institutions work against government's strategies of transformation, fostering economic growth and building sustainable communities. The lack of capacity in government to enforce rules and eliminate corrupt practices is at the heart of weak institutions, thereby creating social disorder and leading to high levels of crime. Hence, it is critical for government to strengthen its capacity at all levels to enforce mine closure regulation, ensure law and order and build and sustain trust with the host communities. Local government ought to be supported to manage the dependencies created by mining operations and the dynamics of mine decline and closure. The government ought to have the political will and be sufficiently equipped to execute its roles as the regulator, protector of rights and promoter of credible commitments.

8.4.2 Strengthen the institutional environment to ensure genuine engagement and compel stakeholders to collaborate to achieve effective mine closure

Section 8.3.2 described the constraints facing the key stakeholders in relation to effective mine closure. The success of mine closure is determined by the ability of the stakeholders to work together. The government should strengthen its capacity to drive efforts to ensure effective collaborative governance in its different roles. This determination will entail working with moral, strategic, and empathetic leaders to restore trust, embrace decline and craft new paths into the future.

Strong institutions are important for socioeconomic development. By working with communities and the private sector, the government should ensure strong institutions with effective enforcement mechanisms. This intervention should build strong institutions to eradicate corruption and empower citizens. Furthermore, the government should ensure that mine-hosting communities are genuinely represented in mine closure processes. Communities should be empowered to participate meaningfully in closure processes and hold duty bearers to account – a principle that all stakeholders should support to ensure economic growth and prosperity. Thus, to empower communities, the government should support CSOs. Appropriate strategies should be adopted to restore broken communities and eliminate the culture of mistrust that lingers postapartheid.

8.4.3 Facilitate bottom-up participatory planning processes involving all stakeholders, adapt appropriate decline planning strategies to address negative consequences of shrinkage and craft a new path that is appropriate for the local context

To embrace decline and adapt appropriate decline planning strategies to address the negative consequences of shrinkage, the government should facilitate participatory processes involving all stakeholders. The emphasis should be on strategies appropriate for the local context and acknowledging the realities of new circumstances. Also critical is identifying and supporting moral, strategic and empathetic leaders who can restore trust, embrace decline and craft new paths into the future.

The government's ability and commitment to ensuring effective mine closure will determine the success of the collaborative efforts. The capacity of communities to hold the duty bearers

to account will determine the government's actions and effectiveness. Communities working with CSOs should lead their empowerment processes to ensure they can actively and meaningfully participate in mine closure processes, articulate their interests, pick up the broken pieces, restore what has been damaged, hold duty bearers to account, and drive their development processes.

8.4.4 Compel mining companies to provide timely closure information and plans, enforce law and order, and adapt strategies to gain community trust

Communities feel betrayed by the government and abandoned by mining companies. These sentiments are based on mistrust and the scarcity of information on mine closure. This perception is critical and impedes progress on government-led development interventions. The situation is not sustainable and is exacerbated by increasing corruption. In addition to strengthening its capacity to eradicate corruption, enforce existing laws and gain community trust, the government should compel transparency among stakeholders and ensure that information relevant to mine closure is available to all stakeholders. This is a difficult task, particularly when a government is not open and transparent. CSOs should be supported to empower communities to understand closure processes and participate meaningfully.

8.4.5 Protect community rights, strengthen local leadership, facilitate participatory processes and enable meaningful stakeholder engagements in mine closure processes

Communities bear the brunt of the negative consequences of mine decline and closure, yet they are excluded from closure processes (refer to Figure 8.1). Communities are poorly organised as a collective and lack the necessary leadership and information to meaningfully participate in and influence mine closures and post-mining development paths. Communities are the weakest stakeholder; they are exploited and their rights are trampled on, thereby dividing and weakening them further. The government, working with relevant players, should strengthen its capacity to protect communities' rights. Empowering communities to determine their development trajectories and holding duty bearers to account is critical. Priority should be given to creating awareness of the realities of mining, the complexities of mine closures, and the nature and importance of decline planning, social justice and building sustainable communities post-mining.

A paradigm shift is necessary to change the stakeholders' mindsets and ensure a long-term commitment that focuses on communities, with the support of the government, CSOs and academic institutions. The government should create an enabling environment for this transformation, and CSOs, through participatory processes, should facilitate the necessary empowerment activities. Ultimately, the shift is critical for restoring broken communities. The government should enable meaningful stakeholder engagements and compel mining companies to provide timely closure information and plans. CSOs should work with communities to create awareness of the pertinent issues and strengthen local leadership, document community stories, use participatory processes to find solutions to suit the local environment and use rights-based approaches and advocacy tools.

8.4.6 Shift from pursuing growth and diversification as the primary goal to embracing decline as an integral part of creating sustainable livelihoods and settlements

As noted in Chapter 3, urban planners and decision-makers of cities experiencing shrinkage tend to pursue growth and expansion strategies. This approach has proven insufficient to address the impacts of shrinkage and may, in some instances, increase the distress caused by the negative consequences of shrinkage. The West Rand should embrace decline and decline planning as critical elements of addressing the negative consequences of shrinkage and, through participatory and innovative processes, adopt a more sustainable development path for the future.

Government strategies should shift from pursuing growth and diversification as the primary goal to embracing decline as an integral part of finding appropriate socioeconomic interventions. To utilise available resources optimally, diversifying the local economy should be considered integral to decline planning. Government strategies should include promoting artisanal small-scale mining and the informal sector, and it should support people to upskill and create more sustainable livelihood strategies.

8.4.7 With the help of civil society organisations, communities should reflect on the social and labour plan concept, explore models in other developing countries and develop a concept appropriate to the local context

The SLP concept is riddled with problems, built on power imbalances and unrealistic assumptions, susceptible to abuse, and has failed to achieve goals. Communities should drive the change to a more workable approach, be cognisant of the failures of SLPs and avoid allowing the processes to be hijacked by ‘powerful’ actors that do not have the communities’ interests at heart. With the help of CSOs, communities should reflect on the SLP concept, explore models in other developing countries and develop a concept appropriate for the local context.

8.4.8 Strengthen institutions regulating mine closure in South Africa

The study identified the following weaknesses in the mine closure regulation and enforcement that the government, working with relevant stakeholders, should attend to:

- i) The enforcement of mine closure legislation is weak due to a lack of government capacity and competence. The government is compromised when it fails to fulfil its obligations relating to closure regulation. The lack of enforcement defeats the purpose of having closure regulation.
- ii) There is a lack of understanding of social issues in mining companies in South Africa. Compared to the environmental aspects, social aspects are inadequately acknowledged and not included in closure regulation, and there are no clear guidelines for handling them. There is an assumption that social aspects are included in the environmental aspects, which could be more helpful. Closure legislation should prioritise social impacts.
- iii) There is a need for care and maintenance limits, and a mine should be handed over to the local community if mining companies breach the time limits.
- iv) There is a lack of financial provision for the environmental rehabilitation of mines during the business rescue process.

- v) There is no standardisation regarding relaxing the environmental obligation of the mine during the business rescue stage.
- vi) Uneconomically viable mines can be sold.

The government should facilitate a thorough participatory review of mine closure regulation in South Africa and support the development of clear mine closure guidelines for communities. The government must fill the gaps, correct discrepancies in the mine closure regulation, monitor and evaluate closure processes, eliminate corruption, and enforce rules.

8.4.9 Strengthen the moral fiber (informal institutions) of society

Formal institutions are embedded in society's informal institutions. Corruption and crime are attributed to decay of the moral fiber of society. Informal institutions influence societal views of the world, how economic transactions/exchanges are carried out and preferred development strategies. Weak informal institutions fail to address the decay of morality and social injustice, promote social cohesion, and embrace diversity. Thus, government, working with communities, CSOs and the private sector should invest in initiatives aimed at strengthening the moral fiber of society, as enshrined within African philosophy of Ubuntu, which emphasises ethical values such as respect, human dignity, compassion, solidarity, and consensus.

8.4.10 Prioritise creating well-located low-cost housing to improve densification and reduce urban sprawl

Postapartheid policies for spatial transformation are yet to achieve their goals. The policies need to be revised, and the unintended negative consequences addressed. The government should prioritise creating well-located low-cost housing, which should include providing incentives to developers (private sector) to build more compact housing developments.

8.5 SIGNIFICANCE OF THE STUDY

The study contributed to a chapter in an edited book, *Local Responses to Mine Closure in South Africa: Dependencies and Social Disruption*' (Matebesi et al., 2024). Two more papers are being prepared. The study has contributed to theoretical and empirical knowledge of the social aspects of mine closures and has made policy recommendations on mine closures.

8.5.1 Contribution to theoretical knowledge

Many mine closure studies are atheoretical. Using NIE as a framework, the study provides a theoretical framework for mine closure. This is the first study to apply NIE to understand mine closure in South Africa. NIE theory explains the damage caused by a weak institutional environment on mine closure, which reduces prospects for economic growth. Weak institutions do not create and promote effective collaboration, cooperation, credible policies, and commitments, nor foster economic growth, pursue transformation and pro-poor strategies and stability, or increase social capital. Weak institutions need to address pertinent challenges or build a sustainable post-mining economy. Hence, the government and stakeholders must strengthen the institutional environment. The shrinking cities framework explains the complexities of mine closure and the ongoing struggles to influence institutional change. The framework identifies effective responses to shrinkage, and provides guidelines for decline planning and strategies for addressing mine closure. Mine closure concepts illuminated the complexities and power imbalances in mine closure and highlighted the important role of informal institutions in influencing formal institutions. The theoretical frameworks showed the constraints faced by the stakeholders and that prevent effective mine closure (refer to Section 8.3.2).

However, the social aspects of closure are less prominent in legislation and research. Most countries have an extensive list of rules for the environmental aspects of closure, but the rules often pay little attention to social aspects. Mine closure studies lack adequate integration of environmental and social aspects, despite legislation assuming such integration. The social and political institutional landscape and power dynamics of the stakeholders in the two contexts differ tremendously, as do the constraints and responses to mine closures.

8.5.2 Contribution to empirical knowledge

The empirical work in Chapter 6 confirmed that mining companies need guidelines on handling the social aspects of closure. Mining companies allocate insufficient resources to closure, partly because some are unknown, and others cannot be quantified. Mines lack experts to manage the social aspects. There are no guidelines for communities on how to handle mine closure.

The study showed that mine closure has severely impacted West Rand communities over the past three decades. The complex challenges of closure are exacerbated by high levels of poverty

and employment and an overdependence on the mining sector. While respondents from mining companies attribute closure to unprofitability, many government officials ignore decline as a rule and focus on planning for growth. Community respondents often ignore the decline and dismiss reasons for closure. Communities attribute the increase in closure and the devastating consequences of mine closure to weaknesses in government systems and structures, which have shattered hopes for a better future. Mistrust of government and mining companies is at the heart of the community's frustrations. Stakeholders have diverse views of the reality and need transparency and restoration of broken relationships in mine closure processes.

The study showed that mines abandoned before 2002, to which mine closure regulation does not apply, continue to have severe social impacts on communities and have contributed to the escalation of illegal mining. Rehabilitation of abandoned mines is an urgent concern, although it progresses slowly because it depends on the government's limited capacity and resources. Mines continue to ignore mine closure regulation and the enforcement mechanisms are weak. Not only are communities distressed by closure, but municipal revenue is dwindling, and municipalities cannot manage the dependencies created by mining. SLPs are riddled with numerous challenges, which are exacerbated by mine closure. Stakeholder engagement in mine closure is ineffective because of the inadequate collaboration drivers (principled engagements, shared motive, capacity for joint action).

Postapartheid policies, including the relaxation of spatial control regulations, have not yielded the intended transformation in settlement patterns. The intention was to build stable, compact, integrated settlements, but migration and urban sprawl remain common. Government views of an alternative post-mining future prioritise pro-growth strategies, which, according to the shrinking cities framework, cannot address shrinkage problems. The need for decline planning as an integral part of counteracting the negative impacts of the decline in mining and adopting strategies appropriate to the local context is emphasised.

The empirical work provides insights into the perspectives, concerns and challenges of communities, mining companies and government respondents. The problems and constraints of the different stakeholders were highlighted, including power imbalances, mistrust, exclusion, high transaction costs, and lack of relevant information, as mentioned in Section 8.3.2. This study is the first to reflect on the relationship between mine closure rule changes and their impact on settlements and the local economy in South Africa and the African continent. The study highlighted the key constraints in poverty-stricken mining contexts that

inhibit proper mine closures. The critical leadership role of government in mine closure and the importance of empowering communities to hold duty bearers to account were highlighted.

8.5.3 Contribution to policy

The study shows that mine closure regulation needs to be addressed and enforced and that policies often assume long-term economic growth. The government should develop adequate laws and provide clear policy guidelines and strong enforcement mechanisms for mine closure. This action (adequate laws and enforcement) will entail the government facilitating participatory processes to identify policy gaps, address the unintended consequences of past institutional changes, eliminate corruption, and strengthen its capacity to fulfil its role as the regulator, protector of rights and promoter of development. Among other recommendations, the regulation should prioritise the social aspects of mine closure, provide time limits for care and maintenance and institute consequences for breach of regulations, compel mining companies to make sufficient financial provision for closure purposes (including environmental rehabilitation) and standardise guidelines for mining companies regarding the acceptable sale of mines and the relaxation of environmental obligations during the business rescue stage. There is a need to develop guidelines for mine closure within existing SLP guidelines.

8.6 AREAS FOR FUTURE RESEARCH

This study focused on the institutional responses to mine closures, which are dominated by large mining companies working on deep gold mining investments. I am motivated to do more research to determine whether communities have different experiences regarding mine closure and to explain the reasons for the differences. Outside the West Rand, I motivate that future research should focus on other contexts, such as minerals and capital outlay in South Africa and other African countries, mine closure planning and achieving respective SDGs. Future research should identify the success stories of mine closure in South Africa and other countries in the Global South. Research studies aimed at developing mine closure guidelines for communities (such as closure guidelines provided to mining companies), investigating alternatives to the SLPs, and the practicalities of artisanal small-scale mining in the Global South should help find workable solutions for the complex mine closure phenomenon.

Further empirical research on the social aspects of closure in other parts of South Africa and Africa will provide an understanding of the realities at the community level and suggest possible interventions to ensure effective mine closure. More research underpinned by NIE theory and the shrinking cities framework in other mining communities in the Global South will generate more knowledge on the different institutions and responses to mine closure. Such research could inform policies and their enforcement, build community structures, and change societal behaviour, by favouring community interests.

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Appendix A



Appendix A

RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM

DATE

2021

TITLE OF THE RESEARCH PROJECT

Social aspects of mine closure in South Africa

PRINCIPLE INVESTIGATOR:

Prof Lochner Marais

MaraisJGL@ufs.ac.za

051 401 3599

FACULTY AND DEPARTMENT:

Faculty of Economic and Management Sciences
Centre for Development Support

WHAT IS THE AIM OF THE STUDY?

To investigate the consequences of mine closure and downscaling in eight case studies:

1. West Rand
2. Richtersveld land claim
3. Koffiefontein
4. Tshikondeni Mine
5. Rustenburg
6. Matjhabeng
7. Kleinzee
8. Emalaheni

WHO IS DOING THE RESEARCH?

We are a diverse team consisting of researchers from varied fields across several universities, our students, and leading international experts in mining and communities.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the General Human Research Ethics Committee of the UFS. On request, the researcher can provide a letter.

Approval number: UFS-HSD2020/2004/2201



WHY ARE WE INVITING YOU TO TAKE PART IN THIS RESEARCH PROJECT?

We will be talking to representatives from companies; government at local, district, provincial, and national level; and, non-profit organisations in (or responsible for) the affected communities. We believe that you have information that is valuable to our project.

WHAT IS THE NATURE OF YOUR PARTICIPATION IN THIS STUDY?

Your participation will consist of an interview between 30 and 60 minutes. We will interview you at your convenience, and likely, over the phone. If you consent, we will record the interview, solely to ensure that we accurately capture the discussion.

CAN YOU WITHDRAW FROM THE STUDY?

Your participation is voluntary and that there is no penalty or loss of benefit for non-participation. Being in this study is voluntary, and you are under no obligation to consent to participation. You are free to withdraw at any time and without giving a reason.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

While there are no direct benefits (and no payments or rewards) to you, your organisation, or your community, the information collected will help our understanding of the impacts of mining, mine downscaling, and mine closure on communities. The information will help inform policy and planning in communities, the country, and internationally.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

We do not foresee any potential risks in participating in this research.

WILL WE KEEP WHAT YOU SAY CONFIDENTIAL?

Any information you share will be confidential. We will not record your name, and no one will be able to connect you to the answers you give. We will give your answers a pseudonym, and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. People responsible for making sure that research is done properly, including the transcriber, external coder, and members of the Research Ethics Committee may review your data. However, they are all bound by the principles of research ethics and respect for the participant. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. Information that identifies you will be destroyed two years after the research has been concluded. We may use your anonymous data in future for other purposes, such as research report, student submissions, journal articles, and conference presentation.

HOW WILL WE INFORM THE PARTICIPANT OF THE FINDINGS OF THE STUDY?

If you would like us to inform you of the final research findings, if you require any further information, or if you have concerns about how the research has been conducted, you may contact the principal researcher listed on the cover. A seminar on all the case studies will be held at the end of 2021.

Thank you for participating in this study.

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty. I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the interview.

I have received a signed copy of the informed consent agreement.

Full Name of Participant:

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s): _____

Signature of Researcher: _____ Date: _____

Appendix B

Invitation to CSOs focus group discussion

Date.....

Name of organisation:

CSOs focus group discussion on Mine Closure in the West Rand scheduled for(Date)...

Your organisation is invited to participate in a focus group discussion on mine closure in the West Rand. This discussion forms part of the research project that is investigating the social impacts of mine closure in South Africa, conducted by the University of the Free State, Centre for Development Support. The information generated by the group will help inform policy and planning in communities, the country, and internationally.

The meeting is scheduled to take place on the(Date) in(Venue), from 09h00 to 13h00. More details of the venue will be communicated once confirmed.

Please find attached an information leaflet for more details on the research project and a consent form to be completed by the participants.

We hope you will be interested in participating in this discussion and look forward to seeing you at the meeting.

Kind regards

.....

On behalf of the researcher

Appendix C

Civil society organisations focus group discussions

Research study: The consequences of mine closure and downscaling in the West Rand

Dates: Mogale City Local Municipality	19th May 2022
Rand West Local Municipality	2nd June 2022
Merafong City Local Municipality	1 st September 2022

AGENDA

09:00 – 09:05 Opening and Welcome

09:05 – 09:30 Introduction of participants and research project

09:30 – 10:30 Participants/communities share experiences of mine closure (social consequences)

10:30 – 10: 45 TEA BREAK

10:45 – 13:30 Reaction/responses/conduct, observed or seen from (what has/should happen):

Mining companies' responses (30 mins)

Government's responses (30 mins)

Citizens/communities responses (30 mins)

NGOs/CSOs responses (30 mins)

Going forward (15 mins)

Thanks and closure

13:30 LUNCH

Appendix D

Interview questions: Guidelines – Public sector respondents

Introductions

1. The Research project we are working on is investigating the “Social aspects of mine closure in South Africa”. The project is investigating the consequences of mine closure and downscaling in eight case studies in South Africa, including the West Rand.
2. We are all bound by the principles of research ethics, approved by the University, and respect for you the participant.
3. The information you share will be confidential. You will remain anonymous and no one will be able to connect you to the answers you give. I will start recording after we have finished the introductions.
4. We may use your anonymous data in future for other purposes, such as research report, student submissions, journal articles, and conference presentations.
5. We will also be sharing the final research findings with the participants, should they be interested.
6. As indicated in the leaflet, your participation is voluntary and you are free to withdraw at any time and without giving a reason.

Questions

1. What has happened with decline in mining over the last 20 - 30 years? This will help us understand the nature and scale of mine decline in the Municipality.
2. What are the reasons for mine closure or possible mine closure?
7. How has the municipality been impacted by mine decline and closure?
 - For municipal planning
 - Finance
 - The local economy
 - Population change
 - Infrastructure (what closed/will close or become redundant)
8. What has been the reaction of the government to the decline?
9. How did the current mine closure legislation assist in making mine closure legislation easy or create problems to manage closure?
10. How did you involve the mining companies, DMR and communities in planning for closure? What problems did you experience in this process?
11. What have been the frustrating issues from the mining companies?
12. What mitigating plans/projects/strategies did the municipality implement to manage mine closure?
 - Land use
 - Economic diversification
 - Housing
 - Infrastructure
 - Municipal finance

- Environmental management

13. Will/can there be positive consequences of mine closure?

14. What should government (local, provincial, national) do or be doing to mitigate against closure?

Can you tell us about the current programmes in social and labour plans? Have these plans been implemented? Will they continue after closure? How will you phase this out?

Appendix E

Interview questions: Guidelines – Private sector respondents

Introduction

1. The Research project we are working on is investigating the “Social aspects of mine closure in South Africa”. We are investigating the consequences of mine closure and downscaling in eight case studies in South Africa, including the West Rand.
2. We are all bound by the principles of research ethics, approved by the University, and respect for you the participant.
3. The information you share will be confidential. You will remain anonymous, and no one will be able to connect you to the answers you give.
4. The session will be recorded, and we may use your anonymous data in future for other purposes, such as research report, student submissions, journal articles, and conference presentations.
5. We will also be sharing the final research findings with the participants, should they be interested.
6. As indicated in the leaflet, your participation is voluntary and you are free to withdraw at any time and without giving a reason.

Questions

1. What has happened with decline/closure in mining over the last 20/30 years?
2. What are the social consequences of mine decline and closure?

Think about:

- crime
 - Unrest
 - Gender
 - The economy (employment)/businesses
 - Available infrastructure
 - The municipality
 - Population decline?
3. How have the different stakeholders (government, mining companies, communities) responded to mine closure? Why do you think they choose these responses? Are they similar or different to other response?
 4. How did the current mine closure legislation assist in making mine closure legislation easy or create problems to manage closure?
 5. Did the mining companies listen the communities in the process of closure? (Do they have an open door?). Give examples? What have been the frustrating issues from the mining companies?
 6. What do you think should be done to mitigate the consequences of mine closure?
 7. What should the government do to prevent or manage mine closure?

8. What should the government do to mitigate the negative social consequences of closure?
9. What should the civil society do to mitigate closure?
10. Social responsibility in mitigating/ managing mine closure?
11. Are there human right concerns that accompany mine closures?
12. Did mine closure have some unintended costs for the community? Any potential positives?
13. What are the current programmes in social and labour plans? Will these plans continue after closure?
14. What is your view of illegal mining in the West Rand? How should it be stopped?

Appendix F

Introductions and questions: Guidelines – Mining companies respondents

Introduction

1. The Research project we are working on is investigating the “Social aspects of mine closure in South Africa”. The project is investigating the consequences of mine closure and downscaling in eight case studies in South Africa, including the West Rand.
2. We are all bound by the principles of research ethics, approved by the University, and respect for you the participant.
3. The information you share will be confidential. You will remain anonymous and no one will be able to connect you to the answers you give. I will start recording after we have finished the introductions.
4. We may use your anonymous data in future for other purposes, such as research report, student submissions, journal articles, and conference presentations.
5. We will also be sharing the final research findings with the participants, should they be interested.
6. As indicated in the leaflet, your participation is voluntary and you are free to withdraw at any time and without giving a reason.

Questions:

1. What have been the social consequences of mine decline and closure in the West Rand over the past 20 – 30 years?
2. Could you explain your current (or past) mine closure strategy for the area/specific mine?
3. Are there dependencies that you are aware of created by (mining company) that will make mine closure difficult?
4. To what degree (20:80, 50:50, 40:60...?) is your focus on environmental aspects compared to the social aspects of mine closure?
5. What pieces of legislation do you find most appropriate or inappropriate to deal with closure?
6. What issues in legislation have been difficult to comply with? Why? Please provide reasons and consequences.
7. Are there positive consequences (potential) of mine closure?
8. What aspects of mine closure do you disclose in your sustainability reports?
9. How do you engage with communities?
10. What was/is the retrenchment plan? How is communicated to the relevant stakeholders?
11. Did you do any skills training to manage closure? Do you keep track of what happened to your retrenched mineworkers?
12. What are the current programmes in social and labour plans? Will these plans continue after closure? How will you phase them out?

13. What is your comment on the illegal mining (*zama zamas*) issue? Why has it escalated and how should it be addressed?
14. What should be happening (government, mining companies, communities) to deal with the long social consequences of closure?

Appendix G



Appendix G

22 February 2022

To whom it may concern

Introduction: Margaret Kusambiza

This letter wants to introduce Margaret Kusambiza. Margaret is a PhD student at the University of the Free State researching mine closure in the West Rand. The NRF funds her research via the Chair on Urban-Region Economics headed by Prof Ivan Turok.

I hereby request that you assist her. You are also welcome to contact me directly.

A handwritten signature in blue ink, appearing to read 'Lochner Marais', is placed over a light blue rectangular background.

Prof. Lochner Marais
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