DEVELOPMENT OF FRAMEWORK FOR STREAMLINING PROSPECTING AND MINING RIGHT APPLICATION PROCESS IN SOUTH AFRICA

Name: Rudzani Charlotte Madilonga

Student Number: 11520870

Supervisor: Prof. F Amponsah-Dacosta

Co-Supervisor: Dr. Sphiwe Emmanuel Mhlongo

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DECLARATION

I, **Rudzani Charlotte (Madilonga) Ravhugoni**, herewith affirm that this dissertation for Master of Earth Science in Mining and Environmental Geology at the University of Venda, hereby submitted by yours truly, is my own unique work and has not been submitted before for any qualification at this or any other university and, that all reference material contained therein has been duly accredited.

Student: ……  **Date: September 2023**

DEDICATION

This is for my lovely family. My spouse Ntsundeni has been a source of strength and encouragement, during the challenges of doing my master's, working full-time, and being a wife and a mother. To my sons, Ntsundeni Junior and Ndivho, for being thoughtful and understanding, and to my mother, Lucy Tshifhiwa Madilonga, for the prayers and support.

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ABSTRACT

Mining has been one of the most significant contributors to South Africa's social and economic progress. South Africa is endowered with a diverse of minerals and mining activities are driven by large corporations and small-scale miners. However, the legislative uncertainty undermines the role of the small miners in society and the economy. This is despite interventions by the government, through legislation, which affords everyone an opportunity to participate in mining, through acquiring prospecting and mining right applications.

The promulgation of the Mineral and Petroleum Resources Development Act (MPRDA), 28 of 2002, was meant to address the imbalances of the past which amongst others include inequitable access to “the nation's mineral and petroleum resources”. Some of the requirements needed for exploration and mining rights applications to be granted have been seen as stumbling blocks for Historically Disadvantaged South Africans (HDSA’s) and emerging junior miners, to fully participate in the sector. For example, finances and technical availability is one of the main reasons why HDSA’s haven’t participated fully in the mining activities of the country. This study proposes a framework, which aims to assist HDSAs and emerging miners to participate in the mining industry through acquisition prospecting and mining rights.

The research data was collected in two phases. Phase one was the quantitative phase. In this phase, questionnaires were circulated to more than 50 potential respondents involved in the mining and related sectors. The quantitative data was analyzed statistically for interpretation. The second phase of data collection was done through qualitative method, where specific questions were sent to 10 experts in the sector. The results were also analyzed through the identification of common themes and interpreted to contribute to the design of the framework.

The results of this study show that although the MPDRA provides emerging junior miners with the prospect to enter the mining industry, there are still barriers or hindrances blocking them from entering the mining industry. Challenges ranged from the initial

compilation of documents, processing of the applications and requirements which need to be met, to departmental challenges. The study reveals that historically disadvantaged South African and emerging miners, do not have the necessary skills to compile applications and attach relevant documents to meet certain regulatory requirements.

In addition, the study shows that the Department of Mineral Resources and Energy (DMRE) expects historically disadvantaged individuals and emerging miners to provide proof that they have the financial and technical ability to carry out the proposed prospecting and mining right works programmes. Financial and technical requirements have been the common areas that results in prospecting and mining rights applications being declined. Moreover, the internal process at the DMRE seemed to favor large-scale mining companies, who have financial resources and technical expertise to carry out prospecting or mining rights.

The framework for streamlining prospecting and mining rights applications will create an environment that enables indigenous people and emerging junior miners to obtain prospecting and mining rights and will provide economic growth for smaller communities. It will also afford the DMRE to have better control, by providing a section, which will be dedicated to assisting historically disadvantaged people and emerging junior miners by providing guidance in terms of the application process and also recommending for funding.

Keywords: emerging miners, junior miners, mining rights, prospecting rights.

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AIIB	Asian Infrastructure Investment Bank
AMCU	Association of Mineworkers and Construction Union
ANC	African National Congress
BBBEE	Broad-Based Black Economic Empowerment
BEE	Black Economic Empowerment
CGS	Council for Geosciences
CMSA	Chamber of Mines of South Africa
DMRE	Department of Mineral Resources and Energy
DTI	Department of Trade and Industry
UNECA	United Nations Economic Commission for Africa
EFA	Exploratory Factor Analysis
EU	European Union
GDP	Gross Domestic Product
ICT	Information and Communications Technology
IDC	Industrial Development Corporation
IMF	International Monetary Fund
SAIRR	South African Institute of Race and Relation
SPLUMA	Spatial Planning and Land Use Management Act
MinCoSA	Minerals Council of South Africa
MHSA	Mine Health and Safety Act (MHSA).
MPRDA	Minerals and Petroleum Resources Development Act
NDP	National Development Plan
NEMA	National Environmental Management Act
NGO	Non-government organisation
NUM	National Union of Mineworkers
NWA	National Water Act 36 of 1998
SOE	State Owned Enterprise

CHAPTER ONE

BACKGROUND AND SCOPE OF THE STUDY

1.1. Introduction

South Africa's economy is built on the mining sector. The nation has a wealth of various natural resources and generates over 30 metal and mineral products. It has enormous reserves, exploration, and production potential (Khubana, 2021). Mineral reserves suggest ownership of rare resources, which is a significant source of wealth (Hlavova, 2015). According to the Mineral and Petroleum Resources Development Act of 2002 (Act 28 of 2002), as amended, the state is the custodian of all mineral and petroleum resources existing inside the Republic of South Africa and within its exclusive economic zones (MPRDA, Act 28 of 2002, Chapter 2(b)).

Considering the above, the Minister of Mineral Resources and Energy has been vested with powers of awarding prospecting and mining rights to prospective individuals or mining companies. The Minister of Mineral Resources and Energy or his/her delegate must ensure that all prospective mining projects are evaluated for economic viability before such projects are allowed to take place (MPRDA, Act 28, 2002 as amended, Chapter 3(1)(2)(a) and (b)). Prospecting and mining right applications are evaluated, and scrutinized, to check if they meet certain regulatory requirements. Prospecting rights are applied and recommended for granting through Section 16(1) and Section 17(1) of the MPRDA, Act 28 of 2002. Prospecting rights can only be recommended for granting after meeting regulatory requirements of Regulation 7(1) while that of mining rights must meet the requirements of Regulation 11(1).

Guidelines currently exist for the processing of prospecting and mining right applications in South Africa. These guidelines are derived from the different Sections in the MPRDA and the Mining Charter. Applications are lodged at the DMRE, through the SAMRAD System, and are then subjected to a review by various sections within the DMRE at different levels for compliance. Although guidelines are already in place, there are challenges in the application process. From the applicant’s side, challenges include understanding what needs to be done, works programme compilation, technical and

financial accessibility, and challenges with the SAMRAD system (Corruption Watch, 2018). In the event of an applicant submitting applications that does not meet the requirements, such is likely to be rejected by the DMRE. Without a clear understanding of the requirements, applicants also struggle to appeal even where grounds to do so exist. It can be argued that every application for prospecting and mining rights that is declined represent an opportunity missed to advance socio-economic development. From the DMRE, the evaluation process seems to be too strict, where some of the applications, especially from the Historically Disadvantaged South Africans are rejected and or refused. This implies that DMRE applies a “one size fit all” approach which do not only become a barrier to new entrants, but also slows the economic growth due to bureaucracy while at the same time lowering economic transformation (Ledwaba, 2017). These guidelines must be critically evaluated, to serve both the DMRE and the applicants of the prospecting and mining right licenses.

Through the evaluation of the prospecting and mining rights application guidelines, this study sought to establish the inefficiencies and limitations that need to be addressed in order to streamline the application processes. Furthermore, it is critical for this study to explore perceptions of stakeholders regarding their knowledge of the guidelines and legislations, as well as identification of challenges that should be addressed to streamline the prospecting and mining right application process in South Africa. Investigating stakeholder perceptions allows the study to establish stakeholder viewpoints on the requirements for prospecting and mining rights in order to produce enabling laws that will advance the inclusion of indigenous and junior miners in mining activities.

1.2. Problem Statement

One of the objectives of the MPRDA of 2002, Act 28 2002 is to redress the past imbalances of the apartheid regime whereby the mineral rights in South Africa were held in the hands of the few minorities. To redress the past imbalance, the Minister of Mineral Resources and Energy must assist the HDSA’s to acquire mining licenses, through funding and providing technical skills. The challenges that are faced by HDSA’sare that mining is a highly capital-intensive industry which requires huge capital investments during prospecting and exploration. HDSA’s are inherently poor because of past exclusive

economic policies, and it is therefore not easy to enter and meaningfully participate in the mining industry. It is evident that junior and/or emerging miners are confronted with litany of challenges that hinder them from entering the market, let alone obtaining the license to prospect and mine. As a result, the legislation should be conducive of creating enabling environment for them to enter the industry as emerging or junior miners.

The minister is therefore left with a huge task of assisting HDSAs, to enter one of the mainstream economies of South Africa. The controversy is that the mining field is levelled in terms of the fairness of the processes, and both the economically advantaged and the HDSA's must compete for the mining licenses. Khubana (2021) argues that mining industry is foundational to the economic and social activities of South Africa, and that the industry could be a catalyst for socio-economic justice when managed properly.

Similar to view held by (Khubana, 2021), Cosbey *et al*. (2016) claim that stakeholders in the mining industry are however not often fully committed to behaving ethically. As a result, the DMRE applies the guidelines and policies fairly across the sector, irrespective of the size of the operations, and starting from the application phase to ensure that all commitments made are assessed and recorded. For example, the situation where activities such as community consultations are treated as tick box exercises by the mining companies should be avoided (Khubana, 2021). Moreover, the tendency of the mining companies not always complying with the social and labor plan and the DMRE being not able to monitor effective implementation thereof should be addressed.

In other words, it can be argued that prospecting and mining right applications are influenced by the ethical behaviour of the applicants and that of decision makers. Hence this study seeks to develop a framework for streamlining prospecting and mining right application in South Africa for junior or emerging miners.

1.3. Purpose of the Study

This study aims at investigating barriers affecting the effective implementation of prospecting and mining legislation, and to develop a framework for streamlining prospecting and mining right application in South Africa for junior or emerging miners. The study also critically evaluates the legislative requirements for obtaining a prospecting and mining rights, including environmental authorisation and operational requirements

which are inherently interweaved with prospecting and mining rights application. In addition, the study develops the practical recommendations for streamlining prospecting and mining right application process for consideration by the DMRE and the lawmakers.

1.4. Objectives of the study

1.4.1. Main Objective

The main objective of this study was to develop a framework for streamlining prospecting and mining right application in South Africa for junior or emerging miners.

1.4.2. Specific Objectives

The specific objectives (SO) of this research were:

- To review the existing guidelines for applications and DMRE requirements for evaluation processes for prospecting and mining right application in South Africa.
- To identify challenges confronting junior/emerging miners and DMRE officials during the lodging and evaluation of prospecting and mining right applications.
- To devise intervention measures and develop framework for addressing the challenges regarding prospecting and mining right application.
- To validate the developed framework for streamlining prospecting and mining right application process.

1.5. Research questions

To achieve the above-mentioned objectives, the following research questions must be addressed:

- What are the challenges of the junior or the emerging miners regarding the existing guidelines for prospecting and mining right applications?
- What are the hindrances brought by the current DMRE requirements during the lodging and evaluation process for prospecting and mining right applications?
- What practical strategies can be formulated to address the persistent issues of prospecting and mining right applications?

- To what extent can perceived solutions improve competences in the prospecting and mining rights application processes?

1.6. Overview of South African mining industry

This section presents an overview of mining in South Africa as a foundation for this study.

1.6.1. History of the South African mining industry

Mining in South Africa has a long history that began in 1852 with the finding of copper at Springbokfontein. The "discovery of the Witwatersrand goldfields in 1886" was a watershed moment in South African history. It foreshadowed the present South African industrial state's rise (MINCOSA, 2017). The world's greatest diamond reserves had previously been found in the 1860s, near what is now known as Kimberley in the Northern Cape Province.

South Africa's mining sector has historically been the "heartbeat" of the country's economic growth, and the country is recognised not only as one of the most competitive countries in the worldwide mining industry, but also as one of the world's most natural resource-rich nations (International Council on Mining and Metals/ICMM, 2014). Moreover, the industry has played a critical role in attracting foreign investment and building top global firms, and it continues to be South Africa's most analytically scrutinised economic sector (Brand South Africa, 2019).

Mining has shaped South Africa's political, social, and economic landscape in many ways, as the sector has been the backbone of the country's economy for many years (World Bank 2018), and the country is extremely endowed with mineral resources, specifically "platinum group metals (PGMs), gold, chromite, manganese, vanadium, and refractory minerals (alumina-silicates)". Other minerals include "coal, iron ore, titanium, zirconium, nickel, vermiculite, phosphate, and many more minerals" in addition to these (Brand South Africa 2019). Despite the fact that South Africa's mining sector stretches back to 1886, ownership change remains a key concern (Khubana, 2021). As a result, the purpose of this research is to identify the obstacles to the prospecting and mining rights application procedure.

1.6.2 Overview of South African mining legislative environment

The Constitution of South Africa (South Africa 1996) is “the supreme law of the country” which offers a framework for policy and law-making, as reflected in Figure 1.2. Section 24 of the South African Constitution (1996) provides for environmental rights and sustainable development. According to (Kidd, 2011), Section 38 ensures that all parties have equal access to justice. Every mining business or person is accountable, according to the MRPDA's regulatory criteria, for ensuring that "social and environmental effect issues have been appropriately analysed before the DMRE grants the mining licences" (Khubana, 2021).

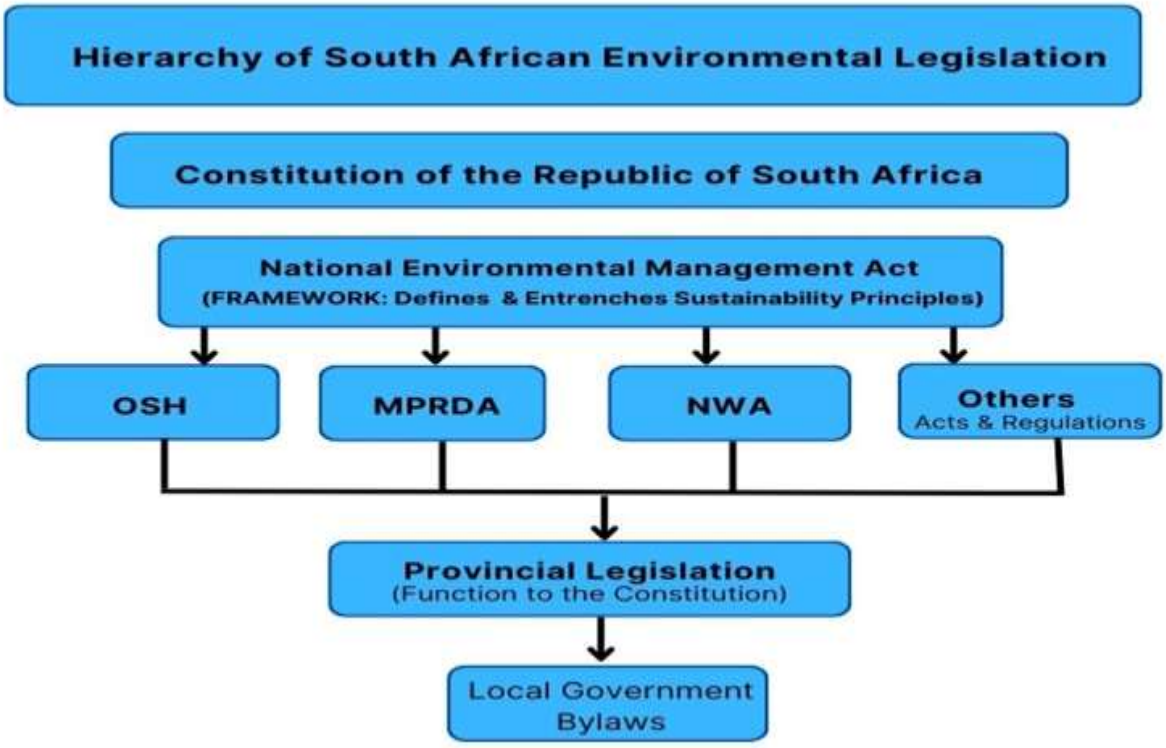

Figure 1.1: South African environmental legislation framework (from Khubana, 2021).

The mining sector is presently governed by the MPRDA, while the mining industry's black economic empowerment imperatives are governed by the Mining Charter of 2018. These legal measures aid mining businesses in using natural resources in a sustainable manner

(Muswaka, 2017). The following sections examine portions of law relevant to prospecting and mining rights:

Prospecting rights

The legislative requirements for the granting of a prospecting right are set out in section 17 of the MPRDA. The DMRE under the executive leadership of the Minister in line with Section 3 of the MPRDA (Act 28 of 2002) has the sole mandate to issue or refuse to permit for prospecting or renewal thereof. However, under section 5A of the MPRDA, an individual or company holding a prospecting right or mining right is prohibited from mining without an environmental authorisation and without giving the landowner at least 21 days' written notice of intention to exercise allocated rights.

The lifespan of a prospecting right is five years, and it can be renewed once for a maximum of three more years. In cases where provisions of Section 17 of the MPRDA are met, the Minister will issue an ordinary prospecting right. Section 104 (1) of the MPRDA also provides for the granting of “preferential right to prospect or mine” to a traditional community to prospect on community land. However, in case of refusal, the minister must “within 30 days of the decision, in writing, notify the applicant of the decision with reasons stating why the right could not be granted”. In terms of this Act, the Minister may delegate his/her powers for approve or reject prospecting right applications to the officials of the DMRE, Deputy Director-General.

Mining rights

A mining right application should be lodged together with an application for environmental authorisation. If the legal conditions in Section 23 of the MPRDA are met, the application for a mining right will be granted. When a mining right application is refused, the applicant must be notified of the decision and the reasons within 30 days. In general, the holder of the mining right may not transfer, let, detach, dispose of, or relinquish the mining right. Mining rights may be encumbered or mortgaged for finance purposes only with the minister's approval (MPRDA, 2002).

Environmental authorization

According to the MPRDA, any mining company or individual applying for mining right must ensure that the social and environmental impact aspects have been adequately evaluated (Khubana, 2021), which is why the Social and Labour Plan (SLP) and Environmental Impact Assessment (EIA) are required. While the MPRDA does not legally require that a water use license be acquired before beginning mining/prospecting activities, the National Water Act makes running mines without a water use license a crime. Applicants for mining or prospecting rights must also lodge an application for an environmental authorization at the relevant regional office. National Environmental Management Act (NEMA 107 of 1998), according to (Muswaka, 2017), establishes environmental management principles that should drive environmental decision-making throughout the mining life cycle. Prospecting and mining activities requires an Environmental Authorisation (EA) issued in terms of the National Environmental Management Act (Act 107 of 1998). As a result, mining activities are prohibited in the absence of an EA.

Community consultation report

Section 10 (a) of the MPRDA requires all applicants for prospecting and mining rights to submit a consultation report strictly in accordance with parts G and H of the guideline for consultation with communities and interested and affected parties within 30 days of notification by the Regional Manager of the acceptance of such application.

1.6.3 Applications process and system

SAMRAD manages South Africa's mining licencing procedure, which allows all applications to be filed online. Despite the implementation of SAMRAD, manual application submissions are still available. According to (Corruption Watch Report, 2018) states that “SAMRAD is a credible initiative, but it has not had the desired effect of streamlining the application process and may have the opposite effect of inhibiting further growth of an already stressed mining sector.” The benefits of SAMRAD when it was first introduced by the DMRE was to streamline the application process, increase transparency and accessibility.

According to Capital Markets and Security Analysts (CMSA, 2016), one of the biggest challenges affecting development of mining projects include delays in issuance of prospecting and mining rights, misinterpretation of legislation and guidelines as well as duplication of mining rights. This shows that the SAMRAD has not been effective in streamlining the application processes. In addition, (Corruption Watch Report, 2018) also emphasis that despite the DMRE implementing SAMRAD to help improve ease of access and speed up the evaluation process, the system has been plagued by irregularities in the mining rights process (corruption) and inaccessibility, and in some cases the double-granting of mining and prospecting rights (where a new applicant is granted rights over the same property portion as an existing prospecting or mining right). The double granting of mining and prospecting rights could be attributed to several reasons, for example, corrupt officials manipulating the application process, technical failure of the system to identify applications for prospecting and mining rights on the same portion of land, and or political influence.

1.7. Significance of the study

The regulatory requirements do not favour the entrance of HDSAs into the mining industry. (Bowmans, 2014) compared how mining rights and prospecting rights are regulated in different African countries, including South Africa but did not explain the actual challenges face by the applicants in South Africa. Although the study covered the legislation applicable for prospecting and mining rights applications, it did not discuss the challenges faced by the applicants nor the effectiveness or efficiencies of the existing legislation. Accordingly, the study sought to review the current regulatory requirements by the DMRE, specifically for HDSAs and come up with suggestions to ease the application processes and requirements for prospecting and mining rights.

A study by (Muswaka, 2017) analysed the legislative framework concerning sustainable mining in South Africa but did not specifically address the subject of this research, hence development of the framework for streamlining the prospecting and mining rights application process is crucial. Although the (Corruption Watch Report, 2018) dealt with challenges affecting the application process, it did not address the subject of framework development, which is critical for this study. Hence, this study also focuses on

identification of challenges affecting the application for prospecting and mining rights by junior miners.

In addition, this study makes recommendations on measures of interventions to streamline application process for prospecting right mining right, and environmental authorisation. As an addition to the body of knowledge of mining legislation South Africa, this study provides different policy proposals the government can implement for expediting the application for prospecting and mining rights.

1.8. Organization of the Dissertation

Chapter one provides the introduction and the background of the study to foreground the problem statement and objectives of the study. In addition, this chapter provided the setting of the study with the supporting brief overview of the mining activities in South Africa as well as the requirements for the application process for prospecting and mining rights.

Chapter Two provides detailed systematic literature review of the secondary data related mining in South Africa, with a specific focus on legislation relevant for prospecting and mining rights applications. Chapter Three of the study presents the research methodology of the study. This chapter includes research design, sampling strategy and data analysis. The justification for the chosen methodology of the study has been provided.

Chapter Four presents the discussion on the results of the research. The results and discussions were structured in accordance with the mixed technique sequence used in the study.

Chapter Five present the summary of conclusions and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The purpose of this research is to develop a framework for expediting the prospecting and mining rights application process in South Africa. Currently, junior miners, those seeking to prospect and mine mineral deposits at a smaller scale, often experience licensing challenges and the government, despite their potential to contribute to community development and economic progress. In this this chapter, existing literature relating to prospecting and mining rights issuance was reviewed by discussing the importance of the mining industry and its landscape, presenting an overview of the regulatory and legislative conditions that constitute the prospecting and mining rights regime of South Africa. In addition, the process of application which is currently administered through an online system is also discussed.

2.2. Importance of the South Africa Mining Industry

South Africa is well-known for its abundant mineral resources. South Africa owns and produces a considerable share of the world's minerals: the nation owns and produces roughly 90% of platinum metals, 80% of manganese, 73% of chrome, 45% of vanadium, and 41% of gold (Goodman et al., 2019; Plagerson & Stuart, 2018). Other minerals mined include iron ore, copper, nickel, diamonds, coal, construction materials, and other non-metallic minerals (Brand South Africa 2019).

South Africa's riches have been founded on its immense resources, making the mining sector critical. The value of South Africa's important minerals is estimated to be close to 30 trillion South African Rands (Mineral Council South Africa’s Pocket Book 2022). Additionally, mining is the country's largest employer, employing about 475,561 According to the International Council on Mining and Metals (ICMM, 2014), the country's mining sector is perhaps the most developed in the world. Being a significant mining nation, it has high levels of technical and production expertise, as well as research and development projects.

The nation has some of the most advanced mineral processing facilities in the world, serving the carbon steel, stainless steel, and aluminum sectors, as well as gold and Platinum Group metals (PGM's). It is also a global leader in innovative technology. Nonetheless, the sector suffers from price variations caused by changes in global demand for mining goods, as well as the lack of mineral beneficiation prior to export (ICMM, 2014).

2.3. Landscape of the South Africa Mining Industry

The mining activities do not only drive foreign direct investment, but also shape South Africa's political, social, and economic agenda (World Bank 2018), and these patterns have been there for decades. In other words, the socio-political agenda of the country such as transformation and inclusive economic growth are underpinned by the mining activities. The industry is primarily regulated under the Mineral and Petroleum Resources Development Act of 2002 (MPRDA, 2002), together with MHSA and NEMA 98. . The Act prescribes that no organisation or individual in South Africa may begin mining operations without a mining right. The Department of Mineral Resources and Energy (DMRE) has sole custodianship of permits and licences and administers of these legal instruments (DMRE, 2021). Table 2.1 shows the list of all the mines that are actively registered.

Table 2.1 above shows the number of existing mines for different commodities found in South Africa, namely: platinum group metals, manganese, chrome, vanadium, gold, coal, diamonds, iron ore, copper, nickel, building materials and other non-metallic metals. The same table (Table 2.1) shows that DMRE has 1866 active mines, which is reflective of all mining rights and prospecting permits approved by the Minister under the MPRDA (2002).

Table 2.1: List of active mines in South Africa (DMRE, 2020).

Commodities	Gauteng	Limpopo	Free State	Mpumalanga	Northwest	KZN	Eastern Cape	Western Cape	Western Cape
Gold	26	0	5	12	9	0	0	0	0
Diamond	6	6	18	0	220	0	0	17	205
Coal	5	6	2	144	0	16	1	0	0
Platinum	1	14	0	6	19	0	0	0	0
Manganese	0	0	0	0	2	0	0	1	25
Iron Ore	0	3	0	0	1	0	0	0	13
Copper	0	1	0	0	0	0	0	0	1
Chrome	0	5	0	11	21	0	0	0	0
Other Minerals	134	105	54	61	102	115	195	187	91
Total	**172**	**140**	**79**	**234**	**374**	**131**	**196**	**205**	**335**

2.4 Overview of the South African mining legislative regime

South Africa's mining legislation is based on a system of state "custodianship of mineral resources," in which the state, acting through the Minister of DMRE, issues various types of licenses and rights to applicants on a 'first come, first served' basis to achieve transformation and empowerment objectives. Additionally, for the licenses and rights to be issued, the applicant must show an acceptable capacity to comply with the legal criteria for financial, technical, environmental, health and safety, and socioeconomic development. The most major piece of legislation in question is the MPRDA of 2002, which went into effect on May 1, 2004. The following are the most notable mining and prospecting licenses, rights, and permits:

- prospecting - which authorizes invasive prospecting and exploration work on an exclusive basis for the prospecting area and mineral concerned, but do not entitle the holder to mine for that mineral.
- mining rights - which authorize mining and exploration on a small or large scale and for an extended period, on an exclusive basis for the mining area and mineral concerned.
- Mining permits - which authorize small-scale mining on areas less than five hectares and for short periods, on an exclusive basis, can support small scale as the requirement is reduced.

In South Africa, before any mining activity can begin, a mine must apply to the DMRE for the right or permission to conduct prospecting and mining. As a result, the MPRDA governs the process of approving or declining mining rights and licenses. These rights are issued based on the stage of the mining process.

Prospecting, as shown in Figure 2.1, is the initial phase in the mining cycle in which it is assessed if there are minerals to mine present. This is accomplished by digging into the ground and examining the soil to determine what minerals (such as coal or platinum) are under the ground. Nevertheless, before prospecting can begin, a mine must get authorisation from the government to do so; called a prospecting right. The prospecting

right allows a corporation or individual to collect soil and rock samples for examination over a five-year period (MPRDA, 2002; Legal Resource Centre, 2016).

After establishing the presence of minerals, a mining company or an individual may apply to the Minister of DMRE for either a mining permit for small-scale mining or a mining right for large-scale mining. A mining permit allows a business or person to mine a small amount of land (no more than 5 hectares) for a period of up to two years, while a mining right allows a company or individual to mine for a term of up to thirty years (MPRDA 2002; LRC 2016). These various mining operations may only be carried out if the mining business obtains license right from the state. Depending on the level of development, the mining business should apply for a "prospecting right", a "mining permit", or a "mining right". These are the fundamental prerequisites for mining in South Africa. Table 2.2 summarises the differences between rights and permits.

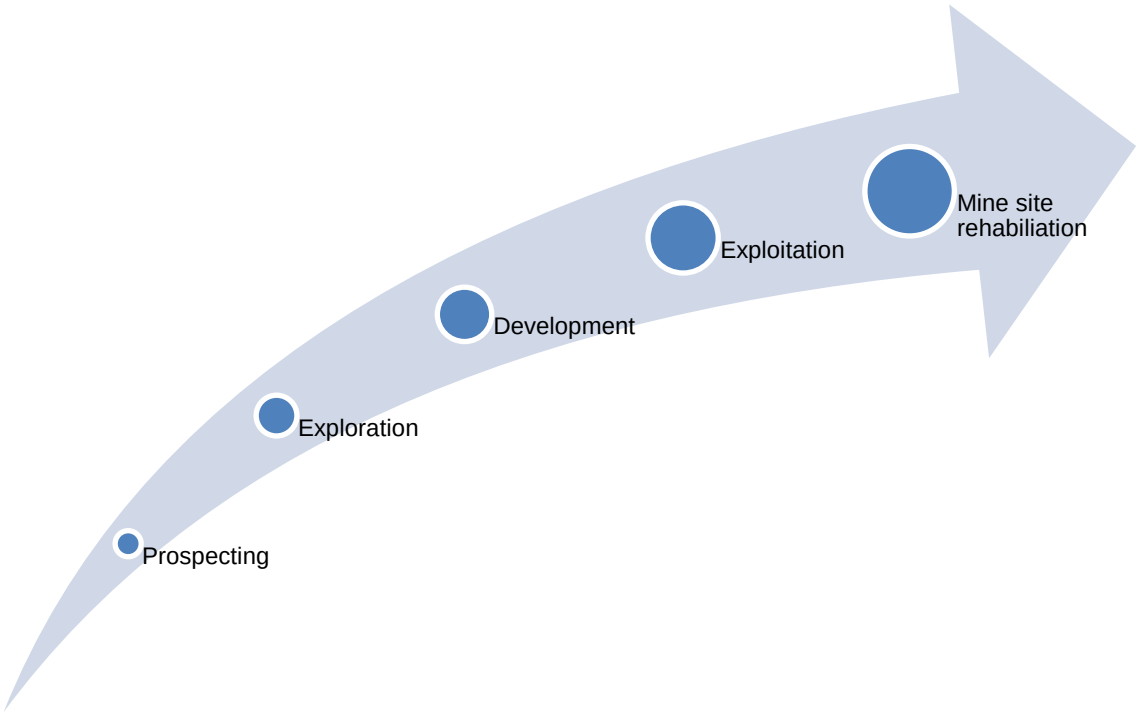

Figure 2.1: The stages of in the life of a mine (from Legal Resource Centre, 2016)

Table 2.2: The categories of mining approvals (from LRC, 2016).

Prospecting Right	Mining Right	Mining Permit
Allows the holder to survey or investigate an area for the purpose of identifying a probable mineral deposit.	Allows the holder to mine minerals within a certain area.	Allows the holder to conduct small scale mining operations in an area that does not exceed 5 hectares.
The right is valid for up to 5 years but may be renewed once for an additional 3 years.	The right is valid for a specified period of up to 30 years. This category of license requires mining companies to demonstrate financial and technical abilities compatible with the mining operations, including but not limited to environmental management and social and labour plan.	The permit validity period is stated on the permit not exceeding a period of 2 years but may be renewed for 3 times for up to one year each time.

2.4.1 The Mineral and Petroleum Resources Development Act No. 28 of 2002

Mining businesses and individuals must follow the same set of laws and regulations to be given the approvals listed in Table 2.2 (MPRDA, 2002). In addition to the permissions and rights provided by the DMRE, mining corporations may be required to get licenses and permits from other government agencies in compliance with other laws.

Additional mining-related authorizations include reconnaissance permits (which allow non-exclusive non-invasive exploratory operations), and retention permits (which protect the exclusivity enjoyed by prospecting right-holders during periods when it would be uneconomical to apply for a mining right due to, for example, adverse economic conditions). Prospective miners must submit plans to demonstrate how they will contribute to the socioeconomic development of communities, which include:

- SLPs that outline the mining company's intentions to contribute to the development of surrounding communities in accordance with the MPRDA (2002).

- Land use rights for development and charting of land in a municipality in accordance with zoning and town planning regulations (provincial legislation). This comprises rezoning petitions, deviations, and permission uses that enable the mining business to utilize the property for the allowed purpose (SPLUMA 13 of 2013).
- According to the National Environmental Management Act (NEMA 107 of 1998), Environmental Impact Assessments (EIA), is necessary. EIAs are used to assess the potential environmental impacts of a proposed project, considering inter-related socioeconomic, cultural, and human health impacts.
- Environmental Authorizations, which are required in terms of NEMA depending on the scale of the project and its scope; and
- Heritage Impact Assessment in terms of the National Heritage Resources Act (NHRA) no 25 of 1999.
- Heritage Impact Assessment is necessary when the project would have an effect on cultural and historic sites under Section 38 of the NHRA.
- A water usage license (WUL) or approval is required under Section 36 of the National Water Act (NWA) no 39 to 40 of 1998.
- Permission to subdivide agricultural land in terms of the Subdivision of Agricultural Land Act (SALA) no 70 of 1970
- Applicants must demonstrate access to both technical ability and financial resources compatible with the prospecting work programme that are readily available or how they will be provided for as contingencies (MPRDA 2002). This will allow the applicant to carry out prospecting operations in accordance with the prospecting work programme while also mitigating and rehabilitating necessary environmental damage.

Above and beyond the statutory obligations outlined above, mining corporations and/or individuals seeking to explore or establish a new mine are required by law to interact with the communities and other people who will be impacted by the project before mining commences. Article 10 (1) (b), 16 (4) (b), 22 (4) (b), 27 (5) (b), and 39 of the MPRDA require the government and right holder to promote "meaningful" community engagement or discussions. Furthermore, Section 10 of the MPRDA and Regulation 3 of the MPRD

Regulations provides that after Regional Manager has accepted an application, he/she must call upon interested and affected people to submit comments with regards to the respective application.

2.4.2 The National Environmental Management Act 107 of 1998

Environmental activities related to mining are governed by the NEMA of 1998. The NEMA establishes the national approach to environmental management and includes a number of novel regulatory tools targeted at the sustainable development of renewable and nonrenewable resources. Clause 2 of NEMA mandates that "growth must be socially, ecologically and economically sustainable". The NEMA EIA Rules may require either a simple assessment or a scoping and EIA before granting an environmental license, depending on the nature of the operation. The DMRE grants (or denies) environmental authorisations.

NEMA sets out several core principles, aimed at "sustainable development, sustainable exploitation of natural resources, management of environmental impacts from economic activities and emphasizing the right of people to live in an environment that is not detrimental to their health and well-being. In accordance with Section 2(2) of NEMA: environmental management shall put people and their needs at the center of its concern, and serve their physical, psychological, developmental, cultural, and social interests equally".

An applicant must show that the prospecting or mining operations "would not result in unacceptable pollution" or environmental deterioration in order to acquire a prospecting or mining right. To that aim, the applicant must either do a basic evaluation or "an EIA and get an" (approving the prospecting or mining operations in question) that includes an environmental management plan or programme. Similarly, health and safety in South African mines are strictly monitored by the MHSA, which includes rigorous requirements (some dating from before the commencement of the MHSA).

In line with NEMA principles, applicants for prospecting or mining right must perform either a basic assessment (for prospecting activities and mining permits) or an environmental impact assessment (for mining rights) and obtain an environmental authorization (authorizing the mining activities) that incorporates the EMP. The method for getting an environmental permit comprises, in basic terms, of the following:

- an application to the DMRE (which administers NEMA regulations pertaining to mining operations).
- a scoping phase in which environmental concerns are evaluated at a basic level and corrective actions are proposed.
- Following public comments and consultations on the scoping report, detailed field studies are then performed by experts in various scientific disciplines (depending on what is appropriate in the circumstances), such as ecology, biology, hydrology, archaeology, geophysics, and so on. Following the conclusion of the consultation, "an environmental impact assessment report and a draught environmental management plan" are compiled and published for public comment within 30 days.
- the final environmental impact assessment report and environmental management programme are compiled, considering (and addressing as far as possible) all comments raised during the process; and
- Timelines for public comments on documents may (and should) be extended if the reports are difficult and voluminous, and any members of the public (including lobbying organizations) seek an extension. Depending on how sensitive the environment is and how many studies must be generated, and peer evaluated, the environmental impact assessment procedure might take eight to 18 months to complete.

2.4.3 Broad-Based Socio-Economic Empowerment Charter

The promulgation of the Broad-Based Socio-Economic Empowerment Charter for the South African Mining and Minerals Industry (Mining Charter, 2018) on September 27, 2018, was followed by the Mining Charter 2018 Implementation Guidelines (Guidelines) in December 2018. The Guidelines which outline processes and execution procedures to facilitate compliance with the Mining Charter 2018. In addition to the employment equality

and local procurement obligations, the Mining Charter 2018 requires substantial stakeholder interactions with reduced compliance objectives for right-holders, given South Africa's present ability to manufacture products, services, and skills locally.

To that end, the Mining Charter 2018 not only provides for economic growth and regulatory security, but it also incorporates several new empowering standards and initiatives for mines aimed at accelerating transformation and social development. The 'ring-fenced' parts of Ownership and Mine Community Development, which always demand complete (100%) compliance for mining right-holders, are a newly proposed concept. The 2018 Mining Charter provides various amounts of HDSA ownership in mining rights. Existing mining right holders must have a minimum empowerment ownership of 26% to be considered compliant for the term of the right; however, this must be enhanced to 30% upon renewal or transfer of such right.

A minimum empowerment ownership of 26% is also needed for pending applications to be considered fully compliant, subject to a five-year 'top-up plan' to enhance its empowerment shareholding up to 30%. Holders of new mining rights must reach a minimum empowerment ownership threshold of 30% as of the day the Mining Charter 2018 is published on September 27, 2018. This 30% shareholding requirement must be distributed in a specific ratio among qualifying employees (5% non-transferable carried interest), mine communities (5% non-transferable carried interest or minimum 5% equity equivalent benefit), and black entrepreneurs (20% effective ownership), with a preference for black women (5%). These compliance targets for existing mining rights are subject to the 'once empowered, always empowered' principle, which means that right-holders can retain empowerment status even if their empowerment partners have exited their equity investment, as long as the empowered shareholder exited before September 27, 2018, and was lawfully authorized to do so under the underlying agreements. The degree to which the Mining Charter 2018 applies to junior miner rights is determined by turnover and employee threshold.

Another significant modification and ring-fenced component of the Mining Charter 2018 is Mine Community Development, which requires complete compliance with Social and Labor Plan obligations. More stringent requirements for procurement of mining goods and

services from local and HDSA suppliers, permission to invest in enterprise and supplier development by offsetting some procurement obligations, and increased requirements for HDSA employment in mining companies' junior, middle, and senior management.

Another significant regulatory development is the March 2020 implementation of proposed amendments to the MPRDA Regulations (Amended MPRDA Regulations), the most notable of which are: an expansion of 'interested and affected parties' with whom mineral right-holders are required to consult, and the inclusion of the requirement for meaningful consultation' when consulting with 'interested and affected parties,' both of which effectively result in a more compliant regime.

While the updated MPRDA Rules reflect the Regulator's efforts to provide legal clarity and practical clarification, several revisions impose costly responsibilities and may cause delays in engaging with government agencies. Following the High Court's recent ruling that informal land right-holders covered by IPILRA must provide full and informed consent before a mining right is granted, the Minister announced in February 2019 his intention to appeal this judgement because it jeopardizes the state's licensing authority as required by mining legislation.

With the implementation of the Amended MPRDA Regulations, there is a clear effort to minimize the disconnect between legal precedents and mining legislation, as evidenced by the inclusion of greater engagement with communities throughout the mine period and of "meaningful consultation" with landowners, lawful occupiers, and interested and affected persons, requiring a good faith facilitated participation process to empower these stakeholders to make decisions. In reality, what is meant by "meaningful consultation" will be established via judicial challenges and further changes.

According to research, there is little indication that these consultations were meaningful or productive since there is minimal growth and engagement of indigenous people in the economy even when big mining activities take place. According to Khubana (2021), the government lacks adequate tools for monitoring and/or enforcing compliance with BBE mandates.

2.4.4 The National Water Act 36 of 1998

The NWA's goal is to decrease and avoid pollution and damage of water resources. Section 19 is concerned with pollution prevention and remediation. This section specifically provides that "an owner of land, a person in control of land or a person who occupies or uses the land on which any activity or process is or was performed or undertaken; or any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring".

Measures that may be taken to stop, modify, or control any act or process that is causing the pollution; to comply with any prescribed waste standard or management practice; to contain or prevent the movement of pollutants; to eliminate any source of pollution; to remedy the effect of the pollution; and to remedy the effect of any disturbance to the bed and banks of a watercourse are examples of reasonable measures that may be taken. A catchment management agency may instruct any individual who fails to take reasonable precautions as necessary to begin taking certain measures before a given date, diligently continue with those efforts, and finish them before a given date. If a person fails to comply, or only partially complies, with any given instruction, the catchment management agency may take any actions it deems necessary to correct the problem.

The NWA mandates practically all water uses over specific thresholds (such as extraction, storage, garbage disposal, discharge, removal of subsurface water, and alterations to water channels) to be licensed and registered. Mining enterprises must first apply for and be granted water usage permits before they may utilize water as stated. Water usage permits are regulatory mechanisms offered by the NWA to guarantee that water use and discharge occur in a manner that advances the NWA's goals.

The NWA recognizes water as a precious resource, and licenses must conform with the legislation in order to appropriately control and safeguard South Africa's water resources. Water use is required to be licensed under the NWA unless it is permissible under Schedule 1; (ii) permissible as a continuation of an existing lawful use; or (iii) permissible

under a general authorization issued under Section 39. Another case in point is when the relevant authority waives the need for a license.

When issuing a general authorization or license, the responsible authority must consider all relevant factors, including existing lawful water uses, the need to redress past racial and gender discrimination, the socio-economic impact of the water use (whether authorized or denied), and any catchment management strategy applicable to the water resource. Crucially, every authorization for water usage must be efficient and advantageous to the public interest.

According to Section 29 of the NWA, the relevant authority may impose restrictions on any general authorization or license. These conditions may include management techniques and basic criteria for any water use, including water conservation measures, and may also involve monitoring and analysis of water usage, putting an obligation on mining firms to measure and record elements of water use. Section 30(1) of the NWA specifies that a "responsible authority may, if required for the protection of the water resource or property, demand the applicant to furnish security for any obligation or prospective liability deriving from a license given under this Act". Operating without a requisite water usage permit is against the law, although many miners do so in practice. Several businesses point to the Department of Water and Sanitation (DWS) delay in processing water usage license applications, however using water without a valid license is a violation of the NWA and a criminal offence. Although the DMRE has the legal right and responsibility to halt miners from using water without a water usage permit, the DWS has the ability to issue directives prohibiting any illicit water use. As a result, both agencies have the authority to halt mining infractions.

2.5 Artisanal and small-scale mining

Artisanal mining refers to the actions of people who extract mineral resources using largely simple mining techniques, manual and rudimentary tools (MINCOSA). Mineral deposits such as most industrial minerals such as sand, granite slate and others of this nature, are often found on the surface or at shallow depths. Yet, in South Africa, such mining is common. This is a labour-intensive activity with little capital, mechanisation, and technology. Small-scale mining (SSM), as opposed to large-scale mining (LSM), is carried

out on a smaller scale than that of major mining companies (MINCOSA, Artisanal and Small Scale Mining paper). Due to the stringent requirements associated with the process of acquiring mining licences, most small scale and artisanal miners' resort to illegal mining as a means of subsistence.

This form of illegal mining is what is commonly known as Zama-Zamas, who target abandoned and active mining operations. These Zama-Zama's have no intentions of acquiring mining licenses as they're modes operandi involves benefiting from the mineral resource and other mining related infrastructure. As such, they will not be discussed at greater lengths on this report, due to their illegality.

Small-scale mining in South Africa encompasses ideas such as junior and emerging mining (MINCOSA) . Smaller producers often engage in mining operations that are sanctioned by authorised rights or licences, as well as other authorizations provided by the DMRE in accordance with the MPRDA and appropriate environmental laws. Legitimate mining is defined as mining operations carried out in accordance with an authorised mining right, permit, or licence, as well as the related environmental authorisation(s) given by the DMRE in line with the MPRDA and the NEMA.

According to the Mining Council of South Africa (2020), integrating the ASM sector into the official economy may benefit miners and communities in South Africa by enhancing security, establishing a route to more predictable earnings, and ensuring safer and more ecologically friendly techniques are used. It may also promote long-term economic and social growth by ensuring that natural resource exploitation benefits the whole country.

Extractive industries, particularly artisanal and small-scale mining (ASM) and development minerals, provide an essential source of income for many marginalised poor people. ASM, in particular, has become an increasingly important source of income for many low-income people. In recent years, an enormous and widespread transition from agricultural to informal mineral extractive industries has occurred. The International Institute for Environment and Development (IIED) projected in 2016 that the number of persons supported by ASM-related activities was 100 million to 150 million and rising.

Governments that associate big-scale mining growth with "development" have built an extractive paradigm that favours huge corporate operators over the ASM sector. Actually,

ASMs are considered unlawful or work on the edge of legality, with minimal job security. The environmental damage caused by ASM is receiving more attention. This activity must be acknowledged as a unique sector that requires a whole new approach in terms of legislation and governance. Several earlier methods of ASM considered it as a subset of large-scale formal mining and did not take into account its highly distinctive difficulties.

The MPRDA currently allows for applications for prospecting rights, mining rights, and licenses, which small-scale miners may utilise, but there are restrictions since the procedure does not take into account the applicants' size and problems. Additionally, Section 27 of the MPRDA, which deals with the licencing framework for the ASM industry, has been widely seen as a barrier to the sector's development and expansion. The actual challenge is bringing them inside the regulated system. The newly published Draft ASM policy of the Department of Mineral Resources and Energy (2021 Draft ASM Policy) aims to foster the creation of a formalised Artisanal and Small-Scale Mining Industry that can operate optimally and sustainably while contributing to the economy through taxes and royalties and job creation, as well as the elimination of illegal ASM operations. Moreover, ASM requires context-specific legal and legislative frameworks, and the relevance of ASM must be represented in national and local agendas, programmes, and plans.

2.6 Online system for mineral administration

South African mineral resource administration is carried out using online platforms (systems) that allow the general public to examine the location of applications, rights, and permits made or held in accordance with the MPRDA (Act 28 of 2002). The same technology may also be used for prospecting and mining rights/license logging applications. SAMRAD is the name given to this system. Minerals Council South Africa (2021) reports that there are 235 mining rights, 2,485 prospecting rights, 1,644 mining licenses, 238 Section 11 change of ownership transactions, and 724 license renewals awaiting approval (backlogged).

In December 2020, a poll of Minerals Council members representing over 170 mining firm right applications was performed. According to the findings, mining companies that are members of the Minerals Council have projects worth approximately R20 billion that have been stalled due to slow government processes, such as delays in the approval of permits

and mining right transfers, as well as the issuance of water-use licenses and environmental permits (MCSA 2021).

Exploration and mining activities have been highlighted as projects that have been postponed for two to three years, and in some cases for much longer. Consequently, there has been an increase in requests for the disbandment of the problematic SAMRAD application system and its replacement with a modern, transparent, and trustworthy online mining cadastre system (MCSA 2021; Corruption Watch 2018). Moreover, Corruption Watch (2018) discovered that, although the online application system (SAMRAD) was implemented to reduce corruption, it is constructed in such a way that it may be exploited to support corrupt acts.

2.7 Systematic literature review

As previously indicated, this study adopted systematic literature review which ideally involved reviewing available literature on application of the prospecting rights in South Africa. However, because there is very limited literature on prospecting and mining rights issuance, the importance of South Mining industry and its landscape with a particular focus on the regulatory and legislative conditions that constitute the prospecting and mining rights regime of South Africa was discussed. From this exercise, several issues pertaining to prospecting and mining rights application were identified, and these challenges are the foundation of the study, as depicted in Table 2.3.

Based on the above discussion it can be deduced that this study on application process for prospecting and mining rights is an incremental addition to the existing literature. Furthermore, the summary of the proposed conceptual model to guide policymakers to adopt good practices that will stimulate growth in this important sector of the economy will be presented on Chapter 3.

Table 2.3: The theoretical contributions of prospecting and mining rights

Source(s)	Explanation of requirements and contributions
Mineral and Petroleum Resources Development Act 28 of 2002 (“MPRDA”) Mine Health and Safety Act, 29 of 1996 ("MHSA") National Environmental Management Act, 107 of 1998 ("NEMA") Watson & Olalde (2019)	**Application for prospecting right** Applications for a prospecting right are lodged online or through the DRME regional office. A prospecting right is defined as a permit which allows a company to survey or investigate an area of land for the purpose of identifying an actual or probable mineral deposit. Validity period of prospecting right is for five years, and renewable for a period of no longer than three years. The prospecting right is approved when following conditions have been met: • Proven access to financial resources and expertise to carry out prospecting operation. • Financing plan that is consistent with the intended prospecting operation • Comply with the MHSA (Act 29 of 1996) • Comply with the MPRDA (Act 28 of 2002) • No other person or company “holds a prospecting right, mining right, mining permit or retention permit for the same mineral and land”. • No unacceptable pollution or damage to the environment will occur because of the prospecting operation. In addition to the above, the application process includes with non-refundable application fee and simultaneous application for environmental authorisation. When application is accepted, the applicant must consult with “the landowner, legal occupier of the land or any other affected party (within 14 days) and submit the outcome of the consultations to the regional manager

Source(s)	Explanation of requirements and contributions
	within 30 days". If all the requirements have been met, the regional manager will submit the application to the Minister for consideration.
Mineral and Petroleum Resources Development Act 28 of 2002 ("MPRDA") Mine Health and Safety Act, 29 of 1996 ("MHSA") National Environmental Management Act, 107 of 1998 ("NEMA") Watson & Olalde (2019)	**Application for mining right** Mining right is the permission from the DMRE to mine minerals within a certain area for a period that may not exceed a period of 30 years. A mining right is granted post the approval of the prospecting rights, provided the following conditions have been fulfilled: • the mineral can be mined optimally. • Proof that the funds and expertise to for the mining operation are available. • Financing plan is well-matched with the intended mining operation and for the duration thereof. • no unacceptable pollution or damage to the environment will occur because of the mining operation. • Financial and other provisions for the prescribed social and labour plan • Complying with the MPRDA (Act 28 of 2002) • Operation is aligned with the requirement of the Mining Charter. Applications are processed online, like prospecting rights and application must be supported with application for environmental authorisation. Where the "application meets all the requirements, the regional manager notifies the applicant in writing within 14 days of receipt

Source(s)	Explanation of requirements and contributions
	of the application". Accordingly, the applicant must "consult with the landowner, the occupier of the land and all other affected parties within 180 days from the date of notice". If the application is not successful the regional manager will "return the application within 14 days", and "if the Minister refuses to grant a mining right, applicant must be informed in writing, within 30 days, stating the reasons for the refusal".
Mining Charter of 2018 (as promulgated on 27 September 2018 and amended on 19 December 2018 Mine Health and Safety Act, 29 of 1996 ("MHSA") National Environmental Management Act, 107 of 1998 ("NEMA") Mining Titles Registration Act, 16 of 1967.	**Ownership control - security over tenements** According to Section 11 of the MPRDA (2002), change of a controlling interest in a publicly listed company and the encumbrance by mortgage of the relevant right in favour of a bank or financial institution, "a prospecting right or a mining right, or an interest in such right, or a controlling interest in a company or close corporation holding the right, may not be ceded, transferred, let, sublet, assigned, alienated or otherwise disposed of in the absence of the written consent of the minister". The consent must be granted if the transferee is capable of carrying out and complying with the obligations, and terms and conditions of the respective right. Any attempted transfer which does not comply with the provisions of Section 11 is void. The Mining Charter has been developed to regulate "broad-based black economic empowerment (B-BBEE) and economic transformation in the industry", and emphasis go to the ownership and control of mining companies by HDSAs, community participation/upliftment and local beneficiation as areas of focus in the granting and maintenance of mining and/or prospecting rights. Accordingly, applications must be consistent with MPRDA requirements,

Source(s)	Explanation of requirements and contributions
National Water Act, 38 of 1996 ("NWA") Watson & Olalde (2019)	whilst at the same time the ability to raise capital is protected, and yet the security over tenements could be an inhibiting factor to how capital is raised. The DMRE works hand in hand with the "Department of Water Affairs and the Department of Environmental Affairs (DEA)" which are all responsible for enforcing environmental, health and safety issues, therefore obtain the license to use water and environmental authorisation is crucial. Simultaneous applications that follow different application process could improve efficiency if integrated.
Mineral and Petroleum Resources Development Act 28 of 2002 ("MPRDA") Watson & Olalde (2019)	**Land tenure and priority** The state has custody of all mineral resources until they are legitimately mined. The MPRDA establishes a distinct mining tenure structure from land tenure. As a result, landowners cannot claim ownership of mineral resources discovered on their property. Prospecting and mining rights holders, on the other hand, must contact landowners as part of the rights application process and achieve an agreement over surface rights including negotiating access arrangements to the prospecting or mining site. Mining and prospecting rights are safeguarded by the constitutional property clause, which forbids "arbitrary deprivation" of property and mandates "fair and equitable compensation" if expropriation is required for "a public purpose or in the public interest." Expropriation is controlled by legislation, allows for representations, and necessitates compensation.

Source(s)	Explanation of requirements and contributions
	The possibility of land claims on property subject to mining or prospecting rights is a risk that applications should be aware of. Prior to investing in mining companies or beginning the rights application process, doing due research on possible land claims might help claimant communities or individuals achieve agreements.
Mineral and Petroleum Resources Development Act 28 of 2002 (“MPRDA”) National Heritage Resources Act, 25 of 1999 ("Heritage Act") Badenhorst & Vanheerden (2019) Olivier, Williams & Badenhorst (2017) Gumbi (2012)	**Indigenous or local community rights** The South African Constitution acknowledges customary law as equal to South African common law, both of which are governed by the Constitution. As a result, customary law property rights are recognised and safeguarded. The Heritage Act provides provisions for the preservation of locations related with "living heritage" or with oral traditions (i.e., "the intangible aspects of inherited culture"). graves and burial grounds, culturally significant landscapes, geological locations, and archaeological/paleontological sites are all examples of protected regions and items ("Heritage Sites"). Due diligence on mining operations/mining firm acquisitions will typically disclose the presence of Heritage Sites. Similarly, the presence of Heritage Sites can be determined as part of the EIA procedure. Through two fundamental procedures, the MPRDA respects customary property claims and indigenous or local community rights. The first is Section 104, which establishes "Preferent Prospecting or Mining Rights" ("Preferent Rights"). The second is the MPRDA's as well as the NEMA's set of consultation obligations. This is a “can of worms”. The most confusing components of indigenous and local community rights are the consultation mechanism and the MPRDA's definition of "community." As a

Source(s)	Explanation of requirements and contributions
	result, mining companies may find it advantageous to connect with indigenous communities and, in particular, traditional leaders in rural areas subject to traditional leadership, as part of the MPRDA's consultation duties. The consultation in some areas is also considered to be influenced by politics and corruption.
Mhangara, Tsoeleng & Mapurisa (2020) Hermanus, Walker, Watson & Barker (2015) Corruption Watch (2018)	Conceptualising small-scale mining challenges Mining is a significant aspect of the South African economy and has driven much of the country's economic progress. The small–scale mining industry, on the other hand, has yet to reach its full potential. A small–scale mine, which comprises artisanal mining, employs less than 50 people and has a yearly turnover of less than R7.5 million. Small–scale miners operate with a range of commodities, while gold, diamonds, and quarrying for construction materials are the most common. Small–scale miners' ability to participate effectively in the mining industry is hindered by their lack of technical, commercial, and managerial skills, as well as their limited access to mineral reserves, capital, and markets. Some of these impediments are left over from colonial and apartheid period imbalances, and they continue to operate as blockages, making entry into the industry impossible. Corruption and failure of administration of the application process can also be attributed as one factor that inhibits growth of the industry.

Source: Authors' compilation.

2.8 Summary of the Chapter

South Africa has enacted a variety of Laws to guarantee sustainable mining. The various mining legislations were enacted in response to the State's obligation under Section 24 of the Constitution, as well as the realisation that the negative impacts generated by mining activities, including their associated social, health, and environmental costs, are borne by the public and the environment, rather than the companies whose activities cause them.

Allowing these costs to be passed on to the public and the environment runs counter to the State's duty to respect, protect, and promote the rights protected in "the Bill of Rights," including the environmental right, as well as the obligations enshrined in legislation such as the MPRDA, NEMA, and NWA, all of which protect the "polluter pays" principle, which requires that the costs of pollution be borne by those responsible. Pollution and land degradation must also be avoided. Sustainable mining necessitates the alignment of the three pillars of economic growth, social fairness, and environmental conservation. When embedded as a method of conducting mining operations, the ethos of sustainable mining has the potential to contribute to wealth creation, poverty eradication, and human and social development without damaging the natural environment.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The chapter discusses data collection, measurements, sample design and data analysis strategies specific to this study. Furthermore, the survey questionnaire design and administration, validity and reliability are also discussed, and concludes with a summary.

3.2 Research Design and Methodology

The study population, sample, data collecting, and data analysis are all guided by the methodology and design of the study (Creswell and Creswell 2017). A research plan assists the researcher to convert a conceptual research problem into practical scientific research. Pilot and Beck (2012) stated that a “research design is a snapshot of the study that describes out strategies in detail and method that will be employed to obtain data that will address the identified phenomenon”.

This study used exploratory sequential mixed methods research design aimed at deepening the understanding of guidelines and legislation affecting the prospecting and mining rights application process. This was done while exploring the perceptions and knowledge of junior or emerging miners. The study also focused on identifying the challenges that adversely affect the enabling legislative environment for emerging or junior miners to enter the mining industry.

The exploratory sequential mixed methods design collects and analyses both quantitative and qualitative data in sequential phases (Creswell and Creswell, 2017). In this type of research design, “the quantitative phase is followed by collection and analysis of qualitative data in second the phase of the research, as well as the data integration from the two independent strands of data” (Berman, 2017). It is a strategy of enquiry within quantitative, qualitative, and mixed methods. Both quantitative data and qualitative data focussed on identification of demographic data, geotechnical and development information, application process and costs, regulatory requirements in terms of financial

and technical abilities, and sociopolitical conditions that contribute to streamlining of the processes for prospecting and mining rights application. This design is appropriate considering that there is a need to validate the recommendations that will simplify the application process for prospecting and mining rights.

To ensure that objectives of the study are met, systematic review of literature was utilised to deal with the first specific objective (SO1) of the study: *to critically examine the existing guidelines and legislation for prospecting and mining right application in South Africa*. Quantitative methodology was adopted to address second objective (SO2) of the study: *to appraise the current DMRE requirements for evaluation of prospecting and mining right applications*.

This will be the first phase of primary research. The second phase of the primary research followed a qualitative research design to address the third objective (SO3) *to devise intervention measures for effectively addressing the pressing issues regarding prospecting and mining right application*. The qualitative methodology will enable the researcher to gain more insight into interventions that are necessary for enhancing efficiency and effectiveness of the prospecting and mining rights application process. Finally (SO4), *to validate the proposed framework for streamlining prospecting and mining right application process in South Africa,* as the ultimate objective, this study applied scoping approaches for development and validation of the framework.

3.2.1 Systematic review of literature

The objective of systematic review was to critically examine the guidelines and legislation requirements relevant to prospecting and mining rights application process. As a result, comprehending and interpreting the scientific evidence required an awareness of the available levels of evidence, specifically reviews of literature relevant to prospecting and mining rights. Linares-Espinós, et al. (2018) stated that systematic review entails selecting relevant studies, extracting the necessary data into the form developed to summarise the included studies, assessing the biases of each study, determining the quality of the available evidence, and constructing tables and text that synthesise the evidence. The strength of systematic review is underpinned by transparency and replicability (Tompson and Belur, 2016).

The literature was gathered from numerous sources and includes data that had previously been used in previous research, making this study easy to carry out. One distinguishing advantage of using secondary data is that most of the preliminary research, such as literature reviews or case studies, has already been conducted. This indicates that secondary data often have a level of validity and reliability that has been pre-established and does not require further examination by the researcher employing such data. In order to acquire information for a literature review on prospecting and mining rights, journals, newspapers, magazines, conference papers, and other materials that are pertinent and reliable for academic reasons were consulted. Elton B. Stephens Company, Google Scholars (EBSCO), and other search engines were used. In the end, secondary data served as a benchmark against which primary research compared the findings.

3.2.2 Phase One - Quantitative Research

Primary research phases of the study employed quantitative design to *appraise the current DMRE requirements for evaluation of prospecting and mining right applications*. (Hoyle, 2014) defines the quantitative design as a strict and objective empirical investigation which follows a methodical procedure and makes use of statistical analysis to arrive at conclusions about a phenomenon. (Creswell and Creswell, 2017) also define quantitative design as an “approach for testing the objectives theories by examining the relationship among variables”.

The quantitative design was considered appropriate because primary data was gathered from the emerging mining companies to confirm barriers identified from the systematic literature review, and the utilisation of a large sample size. This type of research method was chosen because it helps in the generation of a variety of ideas about a research problem in a spontaneous, free-flowing manner]. The quantitative data gathered by this research focused on identification of critical factors affecting effectiveness and efficiency of the existing prospecting and mining right application processes. The results of the quantitative research were furthered interrogated through the qualitative research to enhance the understanding of the challenges affecting the junior miners and identify possible policy interventions.

3.2.3 Phase Two - Qualitative Research

According to (Creswell and Creswell, 2017), qualitative research involves understanding human experiences, beliefs, culture, and situations. In addition, the method of study is humanistic, holistic, interpretive, and essential in recognising and finding meaning from the outside environment. (Bloomberg and Volpe, 2016) further suggest that the primary focus of a qualitative study is the subjective experience and interpretation of a phenomenon. Qualitative researchers “see the world through the lens of the respondents, which enables researchers to identify the cause of the problem being studied” (Bloomberg and Volpe, 2016).

The study gathered qualitative data from the experts in the field of mining to establish interventions that could improve prospecting and mining rights application process. The qualitative data entailed triangulation of the critical factors that have identified through literature review and quantitative data research phase which focussed on geological and development information, application process and costs, regulatory requirement – financial and technical abilities, and sociopolitical factors. This means that, sequentially, the findings of the quantitative research were confirmed through qualitative research while also identifying perceived solutions that would inform the development of a framework.

3.3 Study Population and Sampling

A research population is the total number of any clearly specified instances, records, events, units, collections of goods, or persons that have certain characteristics and may be used as study subjects (Matthews and Ross, 2010). The DMRE regulates the minerals and mining industry thereby promoting economic growth, employment, transformation, and long-term development. This is done through issuing of prospecting rights, mining rights, mining permits and ensuring MPRDA and NEMA compliance. As a result, the population of this research comprises all individuals working in mines as reported in the DMRE active mines database, known as the Directory (D1 2022).

A sample is defined as a "small subset of a larger collection of items, units, events, or people from whom a representative selection is made" (Ghauri and Gronhaug, 2010). There are two types of sampling methods: probability sampling and non-probability

sampling. "The sample is picked via unbiased methods in probability sampling, but in non-probability sampling, the likelihood of any individual member of the population being selected is unknown" (Struwig and Stead, 2013). Non-probability sampling, namely convenience sampling, was used for this investigation. Convenience sampling allows researchers to choose respondents based on their accessibility and availability (Cooper and Schindler, 2007). The DMRE database served as the study's sample frame.

The project planned to collect 50 replies from a total of 10 mines around South Africa for the first phase of research, quantitative research. The database of emerging mines was used to select the ten mines for the sample. There is generally a small list of emerging miners because the sector is new, and therefore there are few merging mines registered with the DMRE. Managers were targeted because of their participation in prospecting and mining rights regulatory matters, and the population consisted of managers from mining organizations in the DMRE database. Owing to geographic restrictions and a lack of a sampling frame, the sample was confined to mining companies operating in the provinces of Limpopo, Mpumalanga, North West, and Northern Cape (Struwig and Stead, 2013).

Because of the COVID-19 pandemic, the participants were contacted online. The institutional ethical clearance was obtained prior to the start of the survey. Before completing the survey, respondents were informed of the goal of the research, that their participation was optional and anonymous, and that all data would be kept confidential. Moreover, both the organizations and the respondents provided formal approval to participate in the research willingly.

The questionnaire was self-created; however, the questions were based on a survey of the literature. Section A of the self-administered questionnaire gathered biographic and demographic data from respondents such as "gender, age, population group, tenure within the industry, size and kind of organizations, and organizational activities" using nominal scales. For the following parts, the instrument used "a seven-point Likert-type scale" ranging from "strongly disagree" (1) to "strongly agree" (7). Section B had items that assessed the variables of the research.

The second step, primary research, acquired qualitative data from ten mining industry specialists. Academics, seasoned mining sector executives, government officials, mining groups, and legal counsel were among the experts.

3.4 Measurement Instrument

The study aimed to target and gather responses from 50 managers involved in the emerging mining projects that are duly registered with the DMRE. The quantitative data of this study was gathered using the survey, self-administered questionnaires, and interview guides. A questionnaire is defined as a list questions, “chosen after considerable testing, with a view to solicit reliable responses from a chosen sample” (Collis and Hussey, 2003).

In this study, self-administered structured questionnaires with closed-ended questions rated by a seven-point Likert-type scale was adopted. These measuring scales were based on existing scales (7- point scale and/or 5-point scale) (Amidei, et al., 2019) and self-developed items, based on a thorough literature study. Furthermore, since qualitative research allows researchers to investigate the inner experience of respondents and to understand how meanings in culture are shaped (Rahman, 2017), qualitative data was gathered using interview guides which were distributed to the experts. This included open questions which refer to an inquiry in which potential respondents are not given options for choosing their answers (Hyman and Sierra, 2016). Instead, it is informative and allowed respondents to express their views spontaneously.

3.5 Pilot study

The researcher pre-tested the survey questionnaire to ensure that it was error-free and capable of collecting accurate and relevant data. According to Khubana (2020), a pilot study is a "small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study." Furthermore, Leedy and Ormrod (2010) state that pilot research is useful for establishing the consistency of the questionnaire. Pretesting, according to Johnston (2014), is a procedure of objectively evaluating the questionnaire and completing preliminary analysis before to conducting the main study. The questionnaire was distributed to a small group

of research participants (10 potential respondents) in order to assess potential errors and determine whether the proposed questionnaire would be successful in gathering relevant information and whether the items in the questionnaire are straightforward and consistent (Burns and Bush, 2014). The questionnaire was not altered, confirming the content and face validity of the study tools.

3.6 Validity and reliability for quantitative data

The measuring instrument's validity and reliability were evaluated as part of the data analysis. Validity was undertaken through the use of experts in confirming the items of the questionnaire, thus face validity. Furthermore, validity was confirmed through pilot study, while reliability was confirmed through calculation of Cronbach's alpha coefficient for the items. Validity implies that the data gathered to answer the research questions was a faithful depiction of the study's characteristics of social reality (Matthews and Ross 2010:53). The measuring instrument's validity was evaluated using face, content, and concept validity. According to (Khubana, 2021), content and face validity are concerned with "determining whether the scale measures what it is supposed to be measured" and were assessed through a comprehensive literature review, expert judgement of management researchers when scrutinizing the measuring instrument, and the conduct of a pilot study prior to the main empirical investigation.

The exploratory factory analysis was used to test concept validity in the second data analysis stage (De Vos, et al., 2003). The exploratory factor analysis technique was calculated to reduce empirical quantitative data to a smaller set of summary variables and to explore the underlying theoretical structure of the phenomena. It is used to identify the structure of the relationship between the variable and the respondent. This calculation confirmed the following variables of the study as critical for streamlining the applications processing for prospecting and mining rights, namely, geotechnical and development information, application process and costs, regulatory requirements (financial and technical abilities), and sociopolitical conditions. Items with loading factor value of 0.4 were considered valid. Lastly, Cronbach's alpha coefficients were calculated for reliability confirmation through the use of Statistica. Cronbach's alpha values were determined, and

items with a coefficient value of 0.7, which is more than the acceptable threshold of 0.6, were judged suitable for this research. There were no untrustworthy items (questions).

3.7 Trustworthiness of data

To keep the study credible, the researcher did the following:

Credibility - Due to the nature of this qualitative study, this step is very crucial, and the researcher presented an in-depth account of the intricacies of variables and interactions anchored in data acquired from the environment This phase was concerned with addressing the "fit" between respondents' views and the researcher's representation of them. The research used peer debriefing to provide an external check on the research process to increase credibility, as well as examining referential adequacy as a means to check preliminary findings and interpretations against the raw data.

Dependability entails ensuring that the research process is rational, adequately documented, and audited. The researcher employed coding techniques such as open coding, axial coding, and selective coding (Schurink et al., 2011). The early dependability conditions were produced by the spiral's initial stage, open coding. After that, the researcher used selective coding, which involves choosing one primary category that unites all of the codes from the study and encapsulates the substance of the research. At the moment of selected coding, themes and sub-themes will be created.

Confirmability – This is concerned with establishing that the researcher's interpretations and findings are clearly derived from the data, requiring the researcher to demonstrate how conclusions and interpretations have been reached (Tobin and Begley, 2004). The researcher checked that the results, conclusions, and recommendations were backed by data and that the interpretation, and the actual evidence agreed (Brink, Van der Walt and Van Rensburg, 2012). The supervisors who provided monitoring and evaluation of the research aided the study in achieving confirmability, which entailed marking reasons for theoretical, methodological, and analytical choices throughout the study so that others could understand how and why decisions were made. The supervisors who ~~provided~~ monitored and evaluated the research assisted the study to reach confirmability. Also, the data analysis technique used in this research was objective.

Transferability - External validity assisted the researcher in determining if the study results could be applied to a different location or group (Pilot and Beck, 2012). Transferability is established by providing readers with evidence that the research study's findings could be applicable to other contexts, situations, times, and populations. Cope, 2014). This is evident also in the fact that same questionnaire used for a pilot study was accepted without amendments. Moreover, the methods and time frames for data collection in this study were fully described, as was the duration of the field study.

Authenticity - The level to which the researcher was able to communicate the feelings, experiences, and emotions of the participants (Pilot and Beck, 2012). As a result, while composing narratives during data analysis, the researcher references participant experiences. In fact, authenticity implies that the conduct and evaluation of research are genuine and credible andthat the research is worthwhile and contributes to the field. Accordingly, the researcher has ensured that genuineness and credibility was upheld by ensuring that various sources used while writing the paper are referenced throughout the research. The study has not been done before and sets out to bridge pre-existing knowledge gaps in terms of the application process for prospecting and mining rights. The data is representative of the sample studied. The design, method, and conclusions address the research question adequately and are free of biases (intentional or unintentional).

3.8 Sequential mixed methods data collection and analysis

The employment of qualitative and quantitative data gathering techniques and analysis is not sufficient for sequential mixed methods research rather, it is the integration of diverse strands of data sets that characterises mixed methods and provides its value. Integration may occur at several levels of a research, including design, technique, and interpretation, and can occur in a number of ways, including linking, building, merging, or embedding (Fetters, et al., 2013). The initial data linkage occurred at the design level in this study, with the adoption of a sequential design, where the findings from the first part of the research were utilised to develop the subsequent phases of the research design. Table 3.1 provide a summary of sequential mixed methods of research analysis.

Table 3.1: Mixed methods data analysis (After Berman, 2017)

Type	Systematic review	Quantitative analysis	Qualitative analysis	Framework development and validation
Research objectives	SO1: To critically examine the existing guideline for prospecting and mining right application in South Africa.	SO2: To appraise the current DMRE requirements for evaluation of prospecting and mining right applications.	SO3: To devise intervention measures for effectively addressing the pressing issues regarding prospecting and mining right application.	SO4: To validate the proposed framework for streamlining prospecting and mining right application process.
Data collection	Documents review - Review of guidelines and legislation	Primary research - Survey/self-administered questionnaires	Interview guides/Open ended questions	Efficiency ratings from the experts - PRISMA-ScR standards (Identification, screening, eligibility, and inclusion) shall be followed.
Nature of analysis	Legislative and regulatory requirements	Means, standard deviation, and confirmatory statistics	Narrative of themes and sub-themes emerging from the experts	Efficiency ratings

According to Table 3.1, the study contrasts the findings of the systematic review and quantitative and quantitative analyses to guide the final analysis phase of research, resulting in the formation of a framework or an overall knowledge established by data strand integration (Teddlie and Tashakkori, 2008).

For data collection via surveys, Microsoft Excel and the computer application Statistica were utilized. The study's descriptive statistics were computed. Descriptive statistics are statistical approaches that try to summarize and meaningfully reduce a huge quantity of data. As a result, descriptive statistics were used to summarize and characterize data provided in measures of central tendency and dispersion (means and standard deviations). Taylor (2018:1) defines descriptive statistics as a statistical process that uses numerical and visual data to identify, summarize, or display data from a sample in such a manner that patterns emerge from the data. Descriptive statistics are used to quantify

central tendency, such as mean, median, mode, median and mean distributions, and may also be used to calculate standard deviation (Taylor, 2018).

The descriptive data phase of the data analysis focused on the respondents' biographical information in the form of numbers, averages, and percentages. Moreover, descriptive statistics were used to determine how respondents perceived the present DMRE standards throughout the lodging and assessment process for prospecting and mining right applications. Variables (geotechnical and development information, application process and costs, regulatory requirements, and sociopolitical conditions) were also included in this research to help understand the empirical data. Table 4.1 summarizes the factors and associated items utilized in this investigation.

The interview criteria were used to collect qualitative data from the experts. Audio files will be verbatim transcribed and translated into English. The researcher went through the transcripts and classified them using theme analysis. The researcher identified the themes via several readings of transcripts. According to Bloomfield and Fisher (2019), qualitative data was analyzed to get a comprehensive understanding of potential strategies for correcting inefficiencies in the present laws governing prospecting and mining rights applications. Emerging topics were tested for dependability throughout the study. NVivo version 11, a computer software application for qualitative data analysis (QDA), was used to analyses the data. The linked data was evaluated in the context of the study's purpose: the creation of a framework for expediting the prospecting and mining right application procedure in South Africa.

3.9 Framework development methodology and validation

The study aims at developing framework for streamlining prospecting and mining right application process in South Africa. The following approach was followed to develop and validate the proposed framework:

3.9.1 Scoping review - identification of evidence to inform methodological framework

The scoping review is becoming a prominent approach to the synthesising of evidence for research. For this research, a scoping review was utilised to explore the existing

landscape of methodological frameworks and to summarise the approaches thematically in order to inform framework development (McMeekin, *et al*., 2020).

The methodological framework for scoping reviews was developed by Arksey and O'Malley and the Joanna Briggs Institute (Sucharew and Macaluso, 2019). Once the framework has been developed based on outcomes of the initial phases of research, experts in the field of mining were invited to validate findings from the scoping review, and the proposed framework by ranking their potential effectiveness and efficiency of the proposed interventions.

3.9.2 Developing methodological framework.

The study developed the interventions to challenges identified by the primary research and weaknesses identified in the MPDRA which set out the requirement for application of prospecting and mining rights. The MPDRA is the reference document for the application of mining and prospecting rights in South Africa (Abduh, *et al*., 2018). The framework was developed based on the findings of systematic literature review, and the quantitative research and qualitative research on prospecting and mining rights application process. The researcher in developing the recommendations considered strength, weakness, opportunities and threats of the recommendations against the existing policy, MPDRA (Rahyani, 2018).

3.9.3 Validation and refinement of the proposed framework

Once the framework has been developed, the researcher invited the experts to review the proposed framework for validation purposes, which considered the recommendations of the study generated after literature review, and the results of the quantitative and qualitative research (Sucharew and Macaluso, 2019). The experts reviewed the proposed interventions for efficiency and effectiveness using the PRISMA-ScR guidelines and a 7-point Likert scale. According to this Likert scale with ordinal level measurement (1 means strongly, 2 means disagree, 3 means somewhat disagree, 4 means undecided, 5 means somewhat agree, 6 means agree, 7 means strongly agree) (Zikmund, 2003), experts were able to validate the framework by rating the recommendations. The PRISMA-ScR is intended to help researchers, policymakers, and guideline developers grasp core concepts and critical information to provide for scoping reviews.

3.10. Ethical considerations

The Department of Earth Science at the University of Venda provided full ethical approval. Consent was also sought from the CEOs of the mining companies chosen for this investigation. The questionnaire was accompanied by a cover letter that explained the purpose of the study and stated that participation was voluntary and anonymous, that responses would be kept confidential, that no individual results would be published, and that respondents could withdraw at any time without penalty. Before collecting data, respondents were asked to sign an informed consent letter.

3.11 Summary of the Chapter

This chapter discussed the distinction between research designs, namely, quantitative, and qualitative research. In addition, an overview of research methodology was provided, resulting in sequential mixed methods research methodology being chosen as an appropriate for this study. The sample design phase has been debated in this chapter, providing a clear illustration of different levels of the process. This chapter concludes by providing a detailed description of the data analysis techniques. The next chapter will explain the empirical results achieved from the main data analysis.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and their interpretations. The results and discussion deals with quantitive analysis, qualitative analysis and validation of proposed changes to the existing legislation by the panel of experts.

4.2. Demographic profile of respondents

Questionnaires were distributed to approximately 70 potential respondents, with 49 (70 % response rate) of them being useable for analysis, since there is no available data base for all small miners.. Males made up most of the respondents (63,3%), while females made up 36,7% of the sample. Furthermore, most respondents (59,2%) were between the ages of 35 and 44, with 16,3% representing people between the ages of 25 and 34, and 16,3% and 6,1% representing respondents between the ages of 45 and 54, and 56 and 64, respectively. Most respondents (63,3%) held postgraduate degrees while 30,6% and 6,1% held undergraduate qualifications.

Most of the respondents came from the black population group (85,7%), followed by the White population group at 12,3%, while Coloured represted 2%. This discripancy could imply that majority of people involved in small mining activities are black South Africans. In terms of experience in the sector, majority (30,6%) of the respondents has experience of approximately 11 and 15 years and above, followed by a ground of respondents of experience of between 6 and 10 years.

Overall, the respondents were directors/owners (14,3%), executive/top managers (16,3%), middle managers (34,7%) and lower-level managers/supervisors (34,7%) who have experince and knowlegde of application process for main commodities are chrome (10,2%), coal (34,7%), diamond (8,2%), gold (10,2%), platinum (10,2%) and industry contractors/ associations (16,3 %). 83,7% of the mines were privately owned with small mines accounting for 22,5%, medimum 22,5% and large operations accounting for 55%.

The statistical demograficarogic profile the respondents (sample) is presented in Table 4.1. Majority of the respondents were male Africans who held post graduate qualifications and had held high positions (Directors).

4.3 Validity and reliability of the measuring instrument

The validity of the measuring instrument determines whether the research instrument is accurate in the measurement of the intended data and truthful to the research objective. In this study, variables (Access to geotechnical and development information, application process and related costs, financial and technical abilities, and institutional support) were assessed for validity of the questionnaire and to reduce the number of variables to smaller subsets establishing construct validity (Sürücü and Maslakçi, 2020).

The questionnaire was assessed and examined for face validity by two supervisors who are academic experts in the field of the study. A pilot survey of 10 potential respondents was conducted for content validity, and no revisions were made since the respondents understood the questionnaire items. Furthermore, a consistency questionnaire was assessed for reliability. Hence, this study utilized Cronbach's alpha coefficients to assess validity and reliability respectively (Table 4.2).

In addition to confirming the four variables of the study, the reliability confirmed that each item tested what it was designed to test. The reliability was confirmed by the results of Cronbach’s alpha coefficients which were above the acceptable of 0.6.

Table 4.1: Demographic statistics of the study

Gender	Frequency		Age	Frequency		Education	Frequency		Population Group	Frequency		Years of Experience	Frequency	
	N	*%*		*N*	*%*		*N*	*%*		*N*	*%*		*N*	*%*
Female	18	36,7	Under 18	0	0	No formal education	0	0	Black/African	42	85,7	1 - 5 years	8	16,3
Male	31	63,3	18 - 24 years	1	2	Senior Certificate/Matric	3	6,1	White	6	12,2	6 - 10 years	12	24,5
	-	-	25 - 34 years	8	16,3	Higher Certificate/Diploma	15	30,6	Coloured	1	2,1	11 - 15 years	15	30,6
	-	-				/Bachelor's degree								
-	-	-	35 - 44 years	29	59,3	Postgraduate qualification	31	63,3				16 - 20 years	6	12,3
-	-	-	45 - 54 years	8	16,3	-	-	-				20+ years	8	16,3
-	-	-	55 - 64 years	3	6,1	-	-	-						
			60+ years											

Table 4.1: Demographic statistics of the study….Cont..

Position	Frequency		Ownership	Frequency		Commodity	Frequency		Size of the mine	Frequency	
	N	*%*		*N*	*%*		*N*	*%*		*N*	*%*
Owner/Director	7	14,3	Pty Ltd	44	89,7	Base minerals	62	18.3	1 - 50 Employees	11	22,5
Executive/Top Management	8	16,3	Public Company	0	0	Coal	69	20.4	51 - 199 Employees	11	22,5
Middle-Level Management	17	34,7	Trust	0	0	Diamond	42	12.4	200+ Employees	27	55
Lower-Level Management	17	34,7	Cooperative	4	8,2	Gold	52	15.3			
			MNC	1	2,1	Platinum	61	18.0			
						Industry contractor	53	15.6			

Table 4.2: Summary results pertaining to reliability of the questionnaire.

Variable	Items	Cronbach's alpha coefficients
Access to geotechnical and development information	Applicants for new mining and prospecting rights have access to geological information	0,70
	Applicants have to rely on professionals in order to know which minerals likely exist in specific areas	0,71
	Applicants always have knowledge of which minerals are likely to exist in specific locations	0,70
	Social and Labor Plans (SLPs) are developed in consultation with the surrounding communities	0,70
	Social and Labor Plans (SLPs) are aligned with the Local Municipal Integrated Development Plan (IDPs) for development of surrounding communities	0,70
Application process and related costs	South African Mineral Resources Administration System (SAMRAD) is always accessible to the applicants	0,70
	Applicants have knowledge and understanding of how to submit their applications through SAMRAD	0,70
	DMRE adheres to turnaround times set out by the MPRDA for adjudication of the applications for prospecting and mining rights	0,74
	Special environmental studies undertaken by the Environmental Assessment Practitioner are costly for new applicants	0,71
	The application fee is affordable to new applicants	0,72
Financial and technical abilities	Applicants do not have own finances required to execute their prospecting and mining works programme	0,71
	Applicants have no access to financing options available at the commercial banks and the development funding institutions such as DBSA, IDC and Public Investment Corporation	0,71
	Investors are not interested in funding projects that are at the application phase	0,72
	Funding support available at the DMRE does not cover all the costs incurred during the application phase	0,70
	Applicants have limited access to the mining equipment	0,70
	Professionals such as geologists, surveyors and engineers required for the implementation of the proposed works programme are not affordable for new applicants	0,76

	New applicants have no provisions for rehabilitation of the mining sites	0,70
	New entrants have limited access to the commodity markets	0,78
Institutional support	Outcomes of the applications are affected by the level of political activities in a specific region	0,70
	The DMRE facilitates meaningful engagement with communities	0,71
	Appeals and objections processes are clear and always adhered to	0,70
	Access to prospective mining land is sometimes restricted by the occupier(s)/owner	0,79
	Emerging mines do not have a credible body that represents their interests at the regional and national level	0,76

Source: Researchers' own construction-based Cronbach's alpha coefficients results from the survey responses.

4.4 Descriptive statistics of the variables under investigation

The descriptive statistics given in Table 4.3 are an important part of this study's quantitative data analysis. Table 4.3 displays the descriptive statistics for each variable on a seven-point Likert scale. The scale's options 1, 2, and 3 denoted the degree to which respondents disagreed with the assertions. Choice 4 on the scale represented neutrality or apathy. On the scale, options 5, 6, and 7 indicated how much respondents agreed with the assertions. Table 4.3 displays the mean and standard deviation of each variable.

Table 4.3: Descriptive statistics for each variable: means and standard deviations per variable.

VARIABLES	MEANS	STANDARD DEVIATION
Access to geological and development information	5,42	1,05
Application process and related costs	4,83	1,15
Financial and technical abilities	5,32	1,09
Institutional support	5,11	0,72

Source: Researcher's own construction

The empirical results in Table 4.3 confirm that respondents view access to geotechnical and development related information, application process and related costs, financial and technical abilities as well as institutional support as the main variables or factors that should be focused on in development of a framework for streamlining the application process for prospecting and mining right. Accordingly, DRME and or policymakers should improve conditions in these four key areas. Each of these variables are discussed in the following sections.

4.4.1 Access to geological and developmental information

The results reveal that most of the respondents agreed (means = 5.42) that this aspect needed attention of the department in order to improve the application process for prospecting and mining rights. Therefore, this study confirms this access to information as a variable for the framework to be developed.

Table 4.4 presents summary of the perceptions of the respondents per item (research questions), in particular, the items designed to test if access to geotechnical and developmental information challenges were affecting the processing of prospecting and mining rights. Access to information was considered to be a challenge by 59.3% of the respondents, while 10.2% was neutral and 26,5% disagreed. 95.9% of the respondents also agreed that although applicants relied on professionals in order to know which mineral existed, compared to 4.1% who disagreed. Despite 71.5% of respondents believing that there is some level of prior knowledge that new applicants might know of the existence of the minerals. In addition, 81.7% of the respondents believed that SLPs were developed in consultation with communities, while 14.3% disagreed, with 6.1% being undecided. Majority of respondents (81.7%) also believed that SLPs were aligned with Integrated Plans of the Municipalities, while 12,3% of the respondents did not agree.

Table 4.4: Summary of responses to items pertaining to access to geological and developmental information.

Item	Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Applicants for new mining and prospecting rights have access to geological information	6,1	10,2	10,2	10,2	18,4	20,4	20,5
Applicants have to rely on professionals in order to know which minerals likely exist in specific areas	0	2	2,1	0	16,3	26,5	53,1
Applicants always have knowledge of which minerals are likely to exist in specific locations	2	12,2	8,2	6,1	24,5	28,6	18,4
Social and Labour Plans (SLPs) are developed in consultation with the surrounding communities	2	8,2	4,1	4,1	14,3	44,9	22,5
Social and Labour Plans (SLPs) are aligned with the Local Municipal Integrated Development Plan (IDPs) for development of surrounding communities	4,1	4,1	4,1	4,1	10,2	44,9	28,6

4.4.2. Application process and related costs

The results reveal that, although respondents considered the processes to be a challenge, there was some level of undecidedness (mean = 4,83). However, it is inferred that this variable is considered important for improving efficiency in the process of applying for prospecting and mining rights and therefore should be considered for refinement.

According to Table 4.5, the respondent of the study, 57,2% believed that South African Mineral Resources Administration System (SAMRAD) was always accessible to the applicants, and while 12,2 % was neutral, 30,6% disagreed. Similarly, majority (71,5%) of the respondents were of the view that applicants had understanding of the application process through SAMRAD compared to 4,1 neutral and 24,4% who disagreed. On the other hand, 44,9% of respondents saw DMRE as non-compliant to the turnaround times set out in the MPRDA for processing the application process, compared to 37,6% who considered the department to be compliant. Finally, 87,8% of respondents agreed that use of Environmental Assessment Practitioners made the application process costly, although the administration fee was considered affordable. The standard deviation above 1 shows how the views of the respondents were dispersed. This variable, based on the analysis above, was considered relevant for prioritization in the development of a framework for streamlining the process for prospecting and mining rights applications.

Table 4.5: Summary of responses to questions pertaining to administration processes for prospecting and mining right applications.

Item	Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
South African Mineral Resources Administration System (SAMRAD) is always accessible to the applicants	10,2	10,2	10,2	12,2	22,5	20,4	14,3
Applicants have knowledge and understanding of how to submit their application for prospecting and licenses through SAMRAD	8,1	10,2	6,1	4,1	22,5	30,6	18,4
DMRE adheres to turnaround times set out by the MPRDA for assessment of the applications for	16,3	22,5	6,1	10,2	6,1	24,5	7

prospecting and mining licenses							

Table 4.5. Continued

Item	Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Special environmental studies undertaken by the Environmental Assessment Practitioner are costly for new applicants	0	6,1	0	6,1	10,2	32,7	44,9
The application fee is affordable to new applicants	0	16,3	10,2	8,1	18,4	28,6	18,4

4.4.3 Financial and technical abilities

Most of the respondents (mean = 5,32) considered financial and technical abilities to be a challenge affecting the process for prospecting and mining rights applications. The results suggest that in order to optimize efficiencies, the framework for prospecting and mining right should prioritize easing some of the requirements, particularly, the requirement for the junior miners to provide proof of financial ability. This should be removed considering that HDSAs and junior miners have limited access to capital because they are at start-up phase of mining.

Detailed analysis of Table 4.6 indicates that regulatory requirements pertaining to financial and technical abilities need to be eased. For example, respondents reveal that applicants do not have the finances (73,5%), while 12,2% of respondents believed that new applicants have the requisite finances and 14,3% were neutral. Similarly, 63,2% of the respondents considered the chances for new applicants getting funding from commercial banks and development finance institution as limited compared to 28,4% who thought there was a chance, while 8,2% was neutral. In addition, 69,3% was of the view that investors were not interested in funding projects at inception stages because of risk

and return uncertainties, while 16,4% believed that potential investors would provide funding. This could be attributed to risks and the regulatory requirements that are prohibiting. 75,5% of the respondents also believed that DMRE financial assistance to emerging miners was not adequate to cover the much-needed costs for project initiation phase, while 16,3% was neutral.

Applicants were believed to have limited access to the mining equipment by approximately 81,8% of the respondents, with 16,3% disagreeing. 73,5% of the respondents also believed that junior miners did not have access to professionals required to carry out their works programme compared to 20,4% who held a different view, while 6,1% were undecided. Finally, 73,5% respondents also agreed that emerging miners had no provision for rehabilitation of mining sites and that the market share was almost non-existent from them (85,7%). In consideration of the results presented in Table 4.6, it can be concluded that regulatory requirements pertaining to financial and technical requirements are amongst the top challenges affecting the applicants for prospecting and mining right.

Table 4.6: Summary of responses to questions pertaining to financial and technical requirements.

Item	Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Applicants do not have own finances required to execute their mining works programme	2	10,2	0	14,3	18,4	30,6	24,5
Applicants have no access to financing options available at the commercial banks and the development funding institutions such as DBSA, IDC and Public Investment Corporation	0	18,4	10,2	8,2	12,2	36,7	14,3

Table 4.6: Continued

Item	Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Investors are not interested in funding projects that are at the application phase	2,1	10,2	4,1	14,3	12,2	30,6	26,5
Funding support available at the DMRE does not cover all the costs incurred during the application phase	2,1	6,1	0	16,3	6,1	34,7	34,7
Applicants have limited access to mining equipment	0	10,2	6,1	2,0	8,2	49,0	24,5
Professionals such as geologists, surveyors and engineers required for the implementation of the proposed works programme are not affordable for new applicants	0	14,3	6,1	6,1	14,3	34,7	24,5
New applicants have no provisions for rehabilitation of the mining sites	2,0	8,2	4,1	12,2	16,3	38,8	18,4
New entrants have limited access to the commodity markets	0	8,2	0	6,1	18,4	40,8	26,5

4.4.4 Institutional support

Majority of the respondents agreed (mean = 5,11) SAMRAD and DMRE's institutional arrangements (value chain for processing of applications for prospecting and mining rights) inhibited efficiency and effectiveness of current processes. Therefore, this study proposed framework for streamlining the application processes for prospecting and mining rights, which will prioritize certain challenges that are structural and entrenched with DMRE systems or institutional arrangement.

In order to explain the average of 5,11, the responses of the participants of the study captured in Table 4.7 are discussed. Accordingly, 59.2% of the respondents believe that the outcomes of the applications are affected by the political meddling (corruption) in specific regions. However, 34.7% of the respondents considered politics to have no influence over the outcomes of the applications, while 6.1% were neutral. Furthermore, most of the respondents (67.4%) did acknowledge the efforts of the DMRE in meaningfully engaging the communities within the processes of applying and granting the prospecting and mining rights, while 18.3%disagreed.

Similarly, 61.2% of the respondents saw the appeal and objection process as clear and adhered to, while 8.2% were undecided and 20.6% outrightly rejected this notion. The view could be that communities are either not empowered to contribute to process or consultations are done in a way that does not include all stakeholders. On the other hand, 93,9% of the respondents perceived access to prospective mining land to be a serious inhibitor to applicants for prospecting and mining right, while 6.1% of the respondents were neutral. This is because farmers or anyone occupying the land that has prospect of minerals will most luckily want to frustrate access to land or seek to process the application themselves as the people who rightfully occupy the land. Finally, 85.7% of the respondents believed emerging miners were not organized in a body that represented their interests regionally and nationally. In the absence of a unified body that represents the emerging miners, their influence in policy making processes and industry at large remains suppressed by large mining companies which are affiliated to the Mineral Council

of South Africa for example. Lobbying for change in legislation and institutional support for junior miners should be supported by creation of multistakeholder platform.

Considering these analyses, institutional support or sociopolitical environment was confirmed as one of the key challenges that must be addressed by the proposed framework of the study.

Table 4.7: Summary of responses to items pertaining to institutional support.

Item	Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree
Outcomes of the applications are affected by the level of political activities in a specific region	8,2	14,3	12,2	6,1	20,4	34,7	4,1
The Department of Mineral Resources and Energy facilitates meaningful engagement with communities	4,0	6,1	8,2	14,3	8,2	44,9	14,3
Appeals and objections processes are clear and adhered to at all times	4,1	14,3	12,2	8,2	30,6	26,5	4,1
Access to prospective mining land is sometimes restricted by the occupier(s)/owner	0	0	0	6,1	32,2	29,0	32,7
Emerging miners do not have a credible body that represents their interests at the regional and national level	0	2,0	2,1	10,2	26,5	40,8	18,4

In line with the empirical results discussed above, this study will develop the framework for streamlining process for prospecting and mining rights applications, by addressing the following key variables, namely, access to geological and development related information application process and related costs; financial and technical abilities; and institutional support.

4.5 Qualitative data analysis

Qualitative data from the experts in the field of mining was qualitatively analysed to establish interventions that could improve prospecting and mining rights application process. As this study had applied a sequential mixed research method, this section presents the findings of the qualitative data that helps the researcher to identify perceived solutions to be included in development of framework for streamlining the prospecting and mining rights application process, thus the amendments to the existing legislation.

Thematic analysis is a method for analysing qualitative data that involves reading through a set of data and looking for patterns in the meaning of the data to find themes. It is an active process of reflexivity in which the researcher's subjective experience is at the centre of making sense of the data. Thematic Analysis and coding was employed, for the analysis of qualitative data to discover and identify themes emerging from the open questions in the survey. Maguire and Delahunt (2017) argue that "thematic analysis" has been used successfully in a number of previous studies. Robinson (2022) indicates that researchers can construct themes by preparing codes, identifying all instances of a given code from various statements and placing them into similar groupings. In this study, the researcher matched the frequently cited phrases in the open question responses with those in the survey. The textual data (table 4.8) from the interview transcripts was also analysed to find basic themes which were ultimately refined into global themes, thus, themes that are most prevalent in the data. This approach also assists in confirming the validity of the data collected (Robinson, 2022).

The responses of the experts in identification of challenges, confirmed the construct of the study which were hypothesised as the broader challenges of the prospecting and mining rights application. A total of 11 global themes emerged from the data, of which

one (01) theme emerged in supporting the notion that access to geological and developmental information was a challenge, five (05) themes emerged supporting that application administration needed to be improved for streamlining prospecting and mining rights, three (03) global themes emerged to support the assumption that financial and technical abilities needed be reconsidered for streamlining prospecting and mining rights application, while institutional support was confirmed by two (02) global themes. Table 4.8 shows only the global themes organised according to each construct of the research model. The thematic areas presented in Table 4.8 are discussed, in the following section with reference to the results of quantitative aspect of this research project.

Table 4.8: Themes that emerged from qualitative data.

Construct of the Research Model	**Global Themes emerging from qualitative data**
Access to geotechnical and developmental information	• Limited access to base information (mineral maps/GIS information/geotechnical information)
Application Process	• Uncoordinated legislation of prospecting and mining rights • Lack of functional central system • SAMRAD reliability issues - duplicate applications, unavailability, late updates • Corruption in processing of the applications • Non-adherence to timeframes by DMRE/Legislation weakness in terms of timeframes for processing of the applications
Financial and technical abilities	• Lack of skills and technical competencies • Lack of access to prospecting and mining equipment • Limited or no access to capital and financial support for projects
Institutional Support	• Restricted access to the land (ownership rights) • Financial institution not willing to providing financing to start-ups

4.6 Findings and Discussion

In this subsection, the findings of both the data analysis methods employed in this study are discussed.

The finding of the research show that experts agreed that limited access to base information, mineral maps, GIS and geological information stifled the process of applying for prospecting and mining rights. This finding confirmed the results of the quantitative survey which had found access to geotechnical and development information to be a challenge that needed to be addressed in order to streamline the application process.

In support the results of the survey, the experts found that there was uncoordinated legislation of prospecting and mining rights, lack of effective central application system, SAMRAD reliability issues and corruption in processing of the applications were the challenges needed to be addressed in the proposed framework in order to streamline the application process for prospecting and mining rights. Non-adherence to timeframes by the DMRE or legislation weakness in terms of timeframes for processing of the applications was an inherent challenge that needs attention.

Experts also agreed that lack of skills and technical competencies, lack of access to prospecting and mining equipment, and lack of access to capital and financial support for small mining projects were amongst the financial and technical capability requirements that negatively affected the processing of prospecting and mining rights for small miners.

Lastly, in line with the results of the survey that found institutional support to be a valid challenge to prospecting and mining rights application process, the expert found restricted access to the land (ownership rights) and unwillingness of financial institution to provide financing for start-ups mining projects as some of the major challenges.

4.7 Validation of conceptual framework

In this subsection, the recommendations of the study emanating from the qualitative research were subjected to expert opinion. Accordingly, Table 5.2 presents the validity of these proposed recommendations which were validated by 10 industry experts.

Table 4.9: Framework for streamlining prospecting and mining rights application process.

- Small scale mining must be redefined in mining rights Regulation and EIA Regulation.
- Cost expenditure estimation should allow and accommodate for a year-to-year exploration budget instead of a full five (5) year upfront budget. This will allow for miners to evaluate exploration phases yearly and be able to raise financial resources for the upcoming phase based on the results at hand and the expectations for the next phase.
- Streamline services available in SOEs such as CGS for free access to SSM or HDSA controlled entities.
- Government should serve as a grantor or subsidise start funding for junior miners.
- Legislate the timeframes for processing of applications to improve efficiency, but clearly stating timeframes allocated to each step in the application processing phase.
- MPRDA provisions that deals with expropriation of land where prospecting or mining projects are unreasonably being denied or delayed must be strengthened to give effect to the objects of the Act.
- Government agency must be established in terms of the MPRDA to deal and assist the junior miners.
- Amend the requirements for Direct Foreign Investments in relation to junior miners' operations.
- Capacitate SOEs such as Mintek, CGS, MQA to assist aspiring junior miners with technical assistance through the mineral development value chain; and
- Develop a new transparent and reliable online mining cadastral system that limits corruption.

4.8 Summary of the Chapter

The results of the study were discussed in this chapter in line with the methodology chosen for this study, sequential mixed methods. The study confirmed that the most prevalent challenges to application of prospecting and mining rights included, access to geological and development related information; application system and related costs; financial and technical abilities; and institutional support. Thereafter, descriptive statistics were conducted to confirm perceptions of respondents of the study in relations to

identified variables. The qualitative data from the experts also confirmed these challenges through thematic analysis. The researcher generated recommendations to increase efficiency and efficacy in the application procedure for prospecting and mining rights, which were then confirmed by experts. Chapter Five will cover the conclusions and recommendations of the study.

CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents conclusions of this study. In addition, the chapter also makes key recommendations for development of the framework for streamlining application process for prospecting and mining rights, they by proposing the various interventions that could be developed to address the challenges identified by this study.

5.2 Summary and interpretation of the results of the study

The study highlighted the need to give attention to the challenges that affect the application process for prospecting and mining rights in South Africa. The challenges that have been confirmed by this study include amongst others, limited access to geological information and technical expertise, lack of institutional support, limited or no access to capital (investment), limited technical abilities, and lack of access to the land and markets. In addition, legislative uncertainty, political meddling and lack of a functional system have also been identified as other challenges that negatively affect the application process.

Mining, if properly managed, presents inclusive growth opportunities, particularly in low-income communities that are located near the mining sites. In addition, mining has the potential to not only improve the local economy, but also to respond to other challenges affecting communities (Khubana, 2021) which amongst other include unemployment and poverty. However, mining in resource-cursed countries such as South Africa tend to have the opposite effect to development as wealth creation or distribution of mineral wealth is not equitable. Therefore, development of framework for streamlining application for prospecting and mining rights that advances inclusive growth through increased access to mining value chain is critical.

A mining industry rooted in accountability and transparency is key to determining a mutually inclusive form of sustainability (Khubana et al., 2022). Unfortunately, for the

South Africa mining industry this has not been the case. Despite the abundance the mineral wealth and other natural resources have earned South Africa a place in the global economy, the industry, particularly small-scale and junior miners, continues to face challenges such as a lack of access to capital and technical abilities or mining equipment, which limit their opportunities for inclusive growth and formalization as a sector of the economy. In this context, forward-looking framework for streamlining the process of applying for prospecting and mining right is proposed by this study. The suggested framework addresses difficulties such as limited access to geotechnical and development information, a hazy application system/process, insufficient financial and technical resources, and a lack of institutional support. These challenges have been grouped according to broader thematic areas within the existing licensing regime of the MPRDA:

5.2.1 Access to geological and development information

According to the study, 59.5% of the respondents viewed access to geological and mine development information as one of key challenges that face new applicant for prospecting and mining rights in South Africa. This view is evident in that 59.5% of the respondents' considered applicants for new mining and prospecting rights have limited or no access to valuable information in relation to the location of possible mineral deposits. While 95,9% of the respondents saw applicants reliant on professionals to know which minerals likely exist in specific areas, 71.2% also believed that applicants rely on professionals despite their knowledge of which minerals are likely to exist in specific locations. In addition, approximately 81.7% of the respondents agreed that SLPs were aligned to the priorities of the local municipalities. This implies that the applications are mostly reliant on the professionals for submission of the application due to lack of geological knowledge despite them having knowledge of other aspects relevant for the application processes.

5.2.2 Challenges relating to the application process and cost.

57.2% of the respondents found SAMRAD accessible, while 42.8 (30.6% did not agree and 12.2% neutral) of the respondents held a different view. In addition, 71.5% of the respondents agreed that applicants were knowledgeable of how to submit the application via SAMRAD. 37.6% of the respondents considered DMRE to be adherent to the

turnaround times for processing of applications as set out in the MPRDA, 44.6% of the respondents viewed DMRE as non-compliant, while 10.2% were neutral. In addition, majority of the respondents (87.8%) agreed that the process of applying from prospecting and mining rights was costly as a result on expenditure incurred on environmental studies undertaken by Environmental Assessment Practitioners, while the remaining respondents were neutral (6.1%) or disagreed (6.1%). The application fees were considered expensive by 65.4% of the respondents, while 26.5% disagreed and 8.1% remained neutral. This implies that although applicants knew the process of applying for the prospecting and mining rights, DMRE's failure to adhere to turnaround times prescribed by the MPRDA were the main challenge.

5.2.3 Financial and technical abilities

Majority of the respondents (71.5%) agreed that applicants do not have finances required to execute their mining works programme, 14.3% were neutral and 14.2% disagreed. 63.2% agreed that applicants have no access to financing options available at the commercial banks and the development funding institutions such as DBSA, IDC and Public Investment Corporation, while 28.6% disagreed, 8.2% remaining neutral. Similarly, 69,3% believe that investors are often not interested in funding small/junior mining operations from the application while, 14.3% were undecided and 16.4% disagreed with this view. Majority (75.5% against 8.2% who disagreed) of the respondents also believed that funding support provided by the DMRE was not sufficient to cover the cost of the application phase, while 16.3 were neutral.

Furthermore, 81.7% of the respondents believed that new applicants had no access to the mining equipment, 73.5% also agreed that professionals such as geologist, surveyors and engineers were not affordable for the new applicants. New applicants did not have provisions for rehabilitation of the mining sites, according to 73.5% of the respondents, neither did they have access to the commodity markets according 85.7% of the respondents of the study. Therefore, it can be inferred that financial and technical abilities requirements inhibits applicants from successfully acquiring prospecting and mining rights.

5.2.4 Institutional support

59.2% of the respondents viewed believe that outcomes of the applications are affected by the political activities is specific region as opposed to 34,7% who considered politics to have no influence over the outcomes of the applications, while 6,1% were neutral. However, respondents (67.4%) did acknowledge the efforts of the DMRE in meaningfully engaging the communities, while 18.3 %and 14.3% of the respondents disagreed or were undecided respectively. Similarly, majority, 61.2% of the respondents saw the appeal and objection process as clear and adhered to, however, 8.2% were undecided and 20.6% outrightly rejected this notion.

Access to prospective mining land was perceived as a serious inhibitor to applicants according to 93.9% of the respondents while 6.1% of the respondents were neutral. This shows their indecisiveness in relation to the support received from the DMRE. Finally, 85,7% of the respondents believed that new small-scale or junior miners were not organized in a body that represented their interests. Therefore, social and political factors inhibiting applicants for prospecting and mining rights included political interference, corruption, limited access to land and failure to organize within the sector.

The reality is that South Africa has the unfortunate distinction of being one of only a few major mining jurisdictions without an accessible mining cadastre where anyone can have equal access to the locality of applications, rights and permits, and the related expiry dates. Almost all African countries that compete with South Africa for exploration investment have such systems. As it stands, in South Africa no-one can tell the locality of applications, rights and permits.

The reality is that where the management of the approvals process is concerned government has left out all key stakeholders and chosen to maintain this position. The lack of transparency is detrimental to the industry and the levels and years of maladministration of the application process have destroyed industry confidence. The Canadian-based Fraser Institute’s annual investment attractiveness index of mining jurisdictions confirmed that South Africa has fallen to 60th out of 77 in 2020 from 40th out of 76 in 2019. The main reason is the lack of transparency.

5.3 Conclusions

To discuss how the above-mentioned research objectives were addressed, the following answers to each research question are summarised below.

The literature view shows that in addition challenges of lack of or limited access to funding (capital) junior and limited technical abilities as well as the general lack of mining equipment, junior miners in South Africa were confronted with social and regulatory uncertainties. Applications for both prospecting and mining right require that junior miners provide geological information regarding the mineral deposits.

The process also require that junior miners must have consulted the communities and affected parties in a meaning manner. Literature show that it is costly for junior miners to engage the services of experts who can assist with the processing of geological information, while access to the land is also a challenge due to resistance of those that occupy it.

The lack of DMRE support in relation to technical expertise required for emerging mining projects and application processes compound the challenges faced by junior miners. Water use licence and environmental impact assessments are a requirement for prospecting and mining rights, yet these are located outside the powers of DMRE. Although the SAMRAD is intended to streamline the application processes, it is riddled with system errors and at times licence or rights are duplicated. This shows that the system has reliabilities issues and or corrupt officials have infiltrated the system.

The second objective was to establish the hindrances brought by the current DMRE requirements during the lodging and evaluation process for prospecting and mining right applications. The research gathered primary data from 49 respondents. The research instrument consisted of 33 questions, which were categorised in broader themes representing the requirements for prospecting and mining rights. The responses to these questions were analysed to confirm or disapprove the challenges that should be overcome to streamline the applications processes. The result of the research revealed that the main challenges where limited access to geotechnical and development

information, application system and the cost of professional services required for logging the applications, insufficient financial and technical resources.

The community consultation is susceptible to political challenges such as legitimacy of community leadership structures which at times excludes communities, while on the other hand municipal integrated development plan are a creation of political discourse, thus politicians dictate the goals of the communities which may not always be consistent with the needs of the people.

The third objective of this study was to develop strategies for addressing the challenges relating to prospecting and mining right application. The study evaluated the problems that junior miners experience versus the expectations placed on them in terms of social performance and community development as well as access to economic opportunities. As thus, this study recognises that there is a need to protect community development agenda in a way that support sustainable mining. Section 9(2) of MPRDA states that "when the Minister considers applications received on the same date he or she must give preference to applications from historically disadvantaged persons".

Hence, the study suggest that prospecting and mining rights application process should be amended by improving the enabling legislation. The MPDRA and Water Act, section 27(7)(b) should be amended to centralise (integrated) the licencing process into one process that is undertaken through a single system that is under the custodianship of one department, preferably the DMRE. Similarly, section 27(6)(b) should be amended to ensure that environmental management plan is a function undertaken by the state practitioners than professionals appointed by the junior miners.

In line with section 11 of the MPDRA, junior miners often have limited access to finance and human resources necessary for processing of the prospecting and mining rights. The general lack of capital could be caused by investors may not finding junior mining projects profitable due limited access to the market of their commodities. In addition, Section 14(1)(a) and (b) and Section 23 should be amended. In addition, new venture capitalists may find the absence of enabling legislation as a challenge. As a result, foreign investors tend to invest in large mining companies than in emerging mines. In the main, junior

miners cannot generate income to refinance their projects unless they start operating. Therefore, the MPRDA must be amended to create conditions that make is simple to attract funding of junior miners. The MPRDA should be amended to include a provision allowing junior miners to borrow money from financial institutions, using their prospecting profitability as a guarantee without transferring ownership from the hands of junior miners.

Section 12 and 13 of the MPDRA should be amended to ensure that the act explicitly states how DMRE will assist the applicants to comply with all the requirements. The government should establish teams of geological professionals, and environmental specialists/experts to support applicants for prospecting and mining rights. This will enable junior miners to identify and verify presence of minerals at an affordable rate.

Section 22(2)(b) of the MPDRA states that “no other person holds a prospecting right, mining right, mining permit or retention permit for the same mineral and land”. DMRE should develop or procure an online application and rights administration system that is able to identify potential duplications. In addition, section 27(5)(b) of the MPDRA which requires that consultation of notification and consultation “with the right owner and landowner and any other affected parties” should consider inclusion of how the state as the sole custodian will facilitate the engagement, with provisions of how non-cooperation will be dealt with without frustrating the application of junior miners.

Capacity-building interventions should also be implemented to ensure that potential candidates and DMRE staff fully comprehend the application procedures and online system. The study's ultimate objective was to gather professional opinion on the efficiency and efficacy of suggested revisions to the framework for prospecting and mining rights application. The researcher employed qualitative research to produce recommendations of viable intervention methods after analysing the literature review and the results of the quantitative research, which focused on identifying difficulties impacting junior miners. Accordingly, the framework for streamlining application for prospecting and mining rights was subjected to the review by the experts in the mining industry. The experts reviewed and validated the recommendations of the study.

5.4 Recommendations

This section states the recommendations or strategies to addressing challenges affecting the application process for prospecting and mining rights in South Africa. These strategies are based on review of literature and the results of the quantitative and qualitative research. In other words, the recommendations emanate from previous chapters. However, the following revisions to the MPRDA are recommended:

- The MPRDA should be amended to include a dedicated section that deals with provisions for the junior miners, separate from small-scale miners and large-scale mining operations.
- SAMRAD system needs to be enhanced or replaced with a system that is mapped according to the needs of the users in terms of lodging the application and tracking status of the application in real time. Alignment with internal operational processes will eliminate time and resources spent on collecting files from the regions to the head office (manual process). It is a vital need to implement a globally competitive digital and transparent cadastre, as is the basic requirement of any mineral-rich jurisdiction.
- As custodian of SA's mineral resources, the DMRE also has an obligation to actively combat corruption in the regional offices and ensure transparency by making investigative reports and legally public information accessible. At the very minimum during this period of review the government must take the public and industry into its confidence and have a multistakeholder approach to addressing the licensing regime's shortfalls.
- Delegation of authority to approve prospecting and mining rights for junior and small-scale miners should be cascaded to the Regional Managers of the DMRE. This will improve the turnaround time and improve efficiency in processing of the applications, especially for the marginalized communities. This would also eliminate or minimize political interference which is increased by centralization of the approval processes.
- Junior and small miners depend on consultants for processing their licenses/permit. The DMRE should create a panel of consultants who are given

the responsibility to assist the communities. This will eliminate the financial burden on the new applicants, but also remove conflict of interest that occurs from the use of the consultants.

- In addition to the technical assistance, in order to sustain the mining initiatives of the junior miners, the Mining Charter requirements should be amended to require that mainstream mining companies provide mentoring programme or incubation programme for emerging junior miners as part of their enterprise development programme. This will help to build sustainable mines for the future.
- Road shows and workshops for all regions must be considered in order to capacitate the junior miners and small-scale miners before they start with their application processes. These capacity building initiatives could include people who are responsible for processing applications from the regional office so that their understanding of the requirements is broadened.
- Capacity building for staff responsible for assessment of the application. Understanding of financial and technical requirements for prospecting and mining right application process must be deepened through cross functionality training initiatives.

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ANNEXURE A

DEPARTMENT OF ENVIRONMENTAL SCIENCES

School of Environmental Sciences

July 2021

Dear Respondent

DEVELOPMENT OF FRAMEWORK FOR STREAMLINING PROSPECTING AND MINING RIGHT APPLICATION PROCESS IN SOUTH AFRICA

Mrs Rudzani Ravhugoni is a student at the University of Venda. She is studying towards a Master of Earth Science in Mining and Environmental Geology in the Department of Earth Science. She is conducting a research project regarding the development of a framework for streamlining the prospecting and mining licences application process in South Africa.

The purpose of this letter is to solicit your consent and collect relevant information on prospecting and mining right application in the South African mining industry. All data sources will be treated as confidential and will be used for research purposes only. The collected data will be reported on by using statistics and no individual respondents will be identified in the research report. Accordingly, the researcher will adhere to the approved research protocol, including safeguarding the anonymity, privacy and confidentiality of respondents at all times. You may withdraw your participation in this study at any stage. Please feel free to contact us with regard to any queries you may have concerning this questionnaire. Upon completion of the study, we undertake to provide all interested parties with a summary of the results.

We do realise that all of us are experiencing unprecedented circumstances under the current Covid-19 pandemic in our respective workplaces or while working from home. We thus thank you for your time and effort in completing this questionnaire.

Kind regards

Dr Francis Amponsah-Dacosta	**Mrs Rudzani Ravhugoni**
Research coordinator	Researcher

1 Declaration/statement of consent: I hereby understand the purpose of the study, I participate voluntarily, I understand that the study is anonymous as well as that all information is kept confidential, and I hereby consent to completing the questionnaire. Please mark your selection with a click in the appropriate box.

Yes		1
No		2

SECTION A

BIOGRAPHICAL AND DEMOGRAPHICAL INFORMATION

Please mark your selection with a click in the appropriate box.

2 Gender

Male		1
Female		2
Not willing to say		3

3 Age group

18 – 19 years		1
20 – 29 years		2
30 – 39 years		3
40 – 49 years		4
50 – 59 years		5
60 + years		6

4 Level of education

No formal education		1
Senior certificate (Grade 12/Matric)		2
Higher Certificate/Diploma/Bachelor's degree		3
Postgraduate diploma/degree		4

5 Population group

Asian		1
Black		2
Coloured		3
~~Indian~~		~~4~~
White		5

6 Tenure (years of employment) within the industry

1 – 5 years		1
6 – 10 years		2
11 – 15 years		3
16 – 20 years		4
20 + years		5

7 Position in the organization

Owner/Director		1
Executive/Top management		2
Middle-level management		3
Lower level management/Supervisor		4

8 Form of ownership of the organization

Private company – (Pty) Ltd.		1
Public company – Ltd.		2
Trust		3
Cooperative		4
Multinational corporation		5
Other, please specify:		6

9 Main commodity(ies) for prospecting and mining rights

Chrome		1
Coal		2
Diamond		3
Gold		4
Platinum		5
Manganese		6
Other, please specify:		7

10 Number of employees in the organization

1 – 50 employees (small)		1
51 – 199 employees (medium)		2
200+ employees (large)		3

SECTION B

PERCEPTIONS REGARDING FACTORS AFFECTING THE APPLICATIONS FOR PROSPECTING AND MINING RIGHTS IN SOUTH AFRICA

	MY ORGANISATION	Strongly disagree	Disagree	Disagree somewhat	Neutral	Agree somewhat	Agree	Strongly agree
GEOLOGICAL AND DEVELOPMENT INFORMATION								
11	Applicants for new mining and prospecting rights have access to geological information	1	2	3	4	5	6	7
12	Applicants have to rely on professionals in order to know which minerals likely exist in specific areas	1	2	3	4	5	6	7
13	Applicants always have knowledge of which minerals are likely to exist in specific locations	1	2	3	4	5	6	7
14	Social and Labour Plans (SLPs) are developed in consultation with the surrounding communities	1	2	3	4	5	6	7
15	Social and Labour Plans (SLPs) are aligned with the Local Municipal Integrated Development Plan (IDPs) for development of surrounding communities	1	2	3	4	5	6	7
APPLICATION PROCESS AND COST								
16	South African Mineral Resources Administration System (SAMRAD) is always accessible to the applicants	1	2	3	4	5	6	7
17	Applicants have knowledge and understanding of how to submit their application for prospecting and licenses through SAMRAD	1	2	3	4	5	6	7
18	DMRE adheres to turnaround times set out by the MPRDA for assessment of the applications for prospecting and mining licenses	1	2	3	4	5	6	7
19	Special environmental studies undertaken by the Environmental Assessment Practitioner are costly for new applicants	1	2	3	4	5	6	7
20	The application fee is affordable to new applicants	1	2	3	4	5	6	7
REGULATORY REQUIREMENTS - FINANCIAL AND TECHNICAL ABILITIES								
21	Applicants do not have own finances required to execute their mining works programme	1	2	3	4	5	6	7
22	Applicants have no access to financing options available at the commercial banks and the development funding institutions such as DBSA, IDC and Public Investment Corporation	1	2	3	4	5	6	7
23	Investors are not interested in funding projects that are at the application phase	1	2	3	4	5	6	7

24	Funding support available at the DMRE does not cover all the costs incurred during the application phase	1	2	3	4	5	6	7
25	Applicants have limited access to mining equipment	1	2	3	4	5	6	7
26	Professionals such as geologists, surveyors and engineers required for the implementation of the proposed works programme are not affordable for new applicants	1	2	3	4	5	6	7
27	New applicants have no provisions for rehabilitation of the mining sites	1	2	3	4	5	6	7
28	New entrants have limited access to the commodity markets	1	2	3	4	5	6	7
SOCIOPOLITICAL ENVIRONMENT								
29	Outcomes of the applications are affected by the level of political activities in a specific region	1	2	3	4	5	6	7
30	The Department of Mineral Resources and Energy facilitates meaningful engagement with communities	1	2	3	4	5	6	7
31	Appeals and objections processes are clear and adhered to at all times	1	2	3	4	5	6	7
32	Access to prospective mining land is sometimes restricted by the occupier(s)/owner	1	2	3	4	5	6	7
33	Emerging mines do not have a credible body that represents their interests at the regional and national level	1	2	3	4	5	6	7

THANK YOU FOR YOUR PARTICIPATION!

ANNEXURE B

University of Venda
Creating Future Leaders

DEPARTMENT OF ENVIRONMENTAL SCIENCES

School of Environmental Sciences

16 May 2022

Dear Respondent

DEVELOPMENT OF FRAMEWORK FOR STREAMLINING PROSPECTING AND MINING RIGHT APPLICATION PROCESS IN SOUTH AFRICA

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Dr Francis Amponsah-Dacosta	**Mrs Rudzani Ravhugoni**
Research coordinator	Researcher

1 Declaration/statement of consent: I hereby understand the purpose of the study, I participate voluntarily, I understand that the study is anonymous as well as that all information is kept confidential, and I hereby consent to completing the questionnaire. Please mark your selection with a click in the appropriate box.

Yes		1
No		2

#	Questions	Answers	
1	Is the current prospecting and mining rights regime an enabler or inhibitor of small-scale miners/junior miners?	**Enabler**	**Inhibiting**
2	What are the challenges that stifle the application process for prospecting and mining rights?		
3	What are the amendments required to address the current challenges facing emerging miners, specifically in relation to the application processes for prospecting and mining rights?		
4	Are there any opportunities within the current regime for application processes for prospecting and mining rights?		

SECTION A

DEMOGRAPHICS

Names	
Position	
Contacts; Email	
Qualifications	
Areas of Expertise	
Total Years of Experience	

THANK YOU FOR YOUR PARTICIPATION!