The efficiency of Environmental Authorisation and Prospecting Right applications for Kimberlite prospecting in the North-West Province

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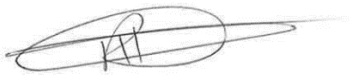
DECLARATION

I the undersigned, hereby declare that this dissertation, titled: "***The efficiency of Environmental Authorisation and Prospecting Right applications for Kimberlite prospecting in the North-West Province***" is my own work and contribution by other authors has been duly acknowledged. This work being submitted to North-West University, Potchefstroom Campus is my own work and has not been submitted to any other university for any degree or examination in part of its entirety.



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Twarisani Theophillus Rikhotso

On the 27th of November 2020

DEDICATION

This work is dedicated to my Mother Ms. Munene Leah Nkhwashu (Se Nhanana to many) for the love and support always.

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“Blessed be the name of God forever and ever, for wisdom and might are his” Daniel 2:20.

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ABSTRACT

Prospecting for minerals requires an Environmental Authorisation (EA) and a Prospecting Right (PR) which are governed by the National Environmental Management Act (NEMA), No.107 of 1998 (as amended) and the Mineral and Petroleum Resources Development Act (MPRDA), No. 28 of 2002 (as amended) respectively. It therefore becomes imperative for the two authorisation processes to be aligned and implemented efficiently to optimise the successful implementation of the Prospecting Work Programme (PWP) in a socio-economical and environmentally acceptable manner. It is for this reason that this research aims to investigate the extent to which EA and PR applications are implemented efficiently using case studies (Cases) of Kimberlite prospecting applications in the North-West Province. There has been no empirical research that has been undertaken on the efficiency of authorisation processes for prospecting activities.

A Mixed Research Approach was adopted in order to achieve the research aim and objectives. Two legislative frameworks were reviewed to address the first research question. The second and third research questions were addressed by document analysis and interviews respectively. Eight Cases were selected, and twenty key stakeholder personnel were interviewed.

The findings of this research have concluded that the MPRDA and NEMA are aligned in principle but not in practice. The efficiency of the authorisation processes was measured by plotting the actual timeframes of selected Cases against the legislatively prescribed timeframe. The PR processes were found to be less efficient than the EA processes. The inefficiencies of the PR authorisation process are characterised by delays in the administrative action of accepting or rejecting PR applications and for granting the PR. The inefficiencies of the EA on the other hand comprise of the administrative action of issuing the EA and the appeal decision.

This dissertation has determined that the authorisation processes are not implemented as efficiently as could be in the North-West Province. This however, is to the greatest extent so for the PR than the EA authorisation process. Recommendations to improve efficiency and for future studies are presented in this dissertation.

Key Words: Efficiency, Timeframes, Delays, Authorisation processes, Prospecting Right and Environmental Authorisation.

ABBREVIATIONS AND ACRONYMS

Ack.	Acknowledgment
Acc.	Acceptance
BA&EMPr	Basic Assessment & Environmental Management Programme Report
CA	Competent Authority
Cases	Case studies
DEFF	Department of Environment, Forestry and Fisheries
DHSWS	Department of Human Settlements, Water and Sanitation
DMRE	Department of Mineral Resources and Energy
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme Report
IA	Impact Assessment
MEM	Mine Environmental Management
MLA	Mineral Law Administrator
MPRDA	Mineral and Petroleum Resources Development Act. 28 of 2002 as amended.
NEMA	National Environmental Management Act, 107 of 1998 (as amended)
OEMS	One Environmental Management System
PPP	Public Participation Process
PR	Prospecting Right
Resp.	Response
PWP	Prospecting Work Programme
RSA	Republic of South Africa
SAMRAD	South African Mineral Resources Administration System
SEMA	Specific Environmental Management Act

For the purpose of this dissertation the word “Issue” shall be used for EA while “Grant” will be used for PR

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

1.1 Background and problem statement

Prospecting means purposefully probing for any mineral employing any method, which interrupts the land, sea, or other water on land, or residue stockpiles in order to establish the degree and economic value of such mineral deposits (RSA, 2009). Both invasive and non-invasive methods are employed for prospecting in a given geological area (GCS, 2016). Prospecting is important as it makes available information to establish and execute new mines (Higgitt & Nel, 2015; Baxter, 2016). Prospecting is particularly important in the South African context, as the mining industry has declined in size drastically over the years (Leon, 2010), notwithstanding the industry's importance to the economy of the country and its potential contribution to the eradication of the socio-economic problems currently faced (le Roux, 2011). Environmental impacts of prospecting include removal of vegetation and organic matter; soil compaction as a result of trampling on both vegetation and soil (Cole, 2004; Huddart & Stott, 2019), use of water, contamination of both surface and groundwater, waste generation, use of chemicals and hydrocarbons, visual impacts, noise and dust (Baxter, 2016; GDACE, 2008; Higgitt & Nel, 2015).

Authorisation processes play an important role in ensuring successful implementation of the Prospecting Work Programme (PWP) in a socio-economic and environmentally acceptable manner. The PWP is a detailed document that outlines the prospecting activities, phases, timeframes, teams, equipment to be used and estimated expenditure for the duration of the prospecting activities (RSA, 2009). The main two authorisation processes which prospecting depend on are Environmental Authorisation (EA) and Prospecting Right (PR). In relation to the aforementioned, both the EA and PR are mandatory authorisations required prior to the implementation of the PWP. EA signifies an authorisation issued by a Competent Authority (CA) for listed activities in terms of the National Environmental Management Act (NEMA), 107 of 1998 (as amended) (RSA, 2017) and the Specific Environmental Management Act (SEMA). PR on the other hand denotes a right granted in terms of section 17(1) for an application made in terms of section 16 of the Mineral and Petroleum Resource Development Act (MPRDA), 28 of 2002 as amended (RSA, 2009). EA ensures that prospecting activities are undertaken in an environmentally sound manner and are socially acceptable (RSA, 2017), while PR promotes equitable access and security of tenure in respect of prospecting rights including the promotion of economic growth through exploitation of mineral resources (RSA, 2009).

The fact that both EA and PR are regulated by different legislation is probably the main cause of inefficiencies.

The Department of Mineral Resources and Energy (DMRE) is responsible for the administrative action of both issuing of EA and granting of PR (Humby, 2015). Administrative action means any decision taken or any failure to make decision by an organ of state, when performing a public function in terms of any legislation (RSA, 2000). DMRE therefore has conflicting roles as part of its mandate is to protect environmental rights and preserve non-renewable resources in terms of NEMA, while it is also required to promote the exploitation and development of mineral resources in terms of MPRDA (RSA, 2009). According to Chuene (personal communication, September 12, 2017) the EA and PR are administered by Mine Environmental Management (MEM) and Mineral Law Administrator (MLA) respectively, within the regional office of DMRE. Silo-based administration of authorisation processes as a result of both institutional and legislative fragmentation have been observed within regional offices of DMRE (Oosthuizen, 2012). These fragmentations therefore result in unnecessary delays in the authorisation processes (Oosthuizen, 2012), which result in cost implications for applicants (Montgomery, 2015; Nell, 2015; Oosthuizen, 2012; Steenkamp, 2009) and an infringement of the applicant's right to just administrative action (Kotze & van der Walt, 2003).

There is however limited empirical research that has been undertaken on the efficiency of the authorisation processes for prospecting activities, with the most notable research related to this topic being Humby (2015); Oosthuizen (2012) and Steenkamp (2009). This research differs from that of Humby (2015), in that the purpose of Humby's study was to outline the One Environmental Management System (OEMS) that was aimed to align the compliance obligations for environmental management of mining in South Africa. It differs from that of Oosthuizen (2012) which focused on mining, while the current research is focused on prospecting. It then differs from the work of Steenkamp (2009) which focused on Environmental Impact Assessment (EIA) authorisation for town planning applications in the Mpumalanga Province.

The aim of this research is therefore to investigate the extent to which EA and PR applications are efficiently implemented using case studies (Cases) of Kimberlite prospecting applications in the North-West Province. Efficiency is defined in terms of timeous decision-making, costs implications (Atkinson, 2002; Fischer, 2015) and the

degree to which the stakeholder expectations (Bond *et al*., 2018) are meet with regards to timeframes of authorisation processes, for the purpose of this dissertation. The importance of efficiency for authorisation processes has been documented by Kotze and van der Walt (2003); Montgomery (2015); Nell (2015); Oosthuizen (2012) and Steenkamp (2009).

1.2 Research aim and objectives

Taking into consideration the problem statement detailed above, the research aim is to investigate the extent to which EA and PR applications are efficiently implemented in the North-West Province.

In order to achieve the research aim, the following research objectives have been established:

1. To determine the degree to which the prescribed timeframes in both MPRDA and NEMA are aligned;
2. To analyse the extent to which the prescribed timeframes are complied with in the selected Cases; and
3. To investigate what could be contributing to the results of the second research objective and to propose solutions, as suggested by selected role players .

1.3 Brief outline of the research methodology

A mixed method approach has been used in order to address the research aim and the objectives, by using Cases of Kimberlite prospecting authorisation processes. The qualitative approach has been used to determine the degree to which the prescribed timeframes in both MPRDA and NEMA are aligned. A quantitative approach has been used to measure the actual timeframes in which selected Cases' authorisation processes have been implemented. The selected Cases are eight of the seventeen prospecting applications submitted to the North-West Province between January 2016 to August 2017. Of the eight Cases, four Cases were with no appeal, three Cases were with appeal and one Case was with both appeal and court case.

The qualitative approach has also been used to investigate the stakeholders' views with regards to authorisation processes. Stakeholders' views were obtained by interviewing twenty participants from Mine Environmental Management (MEM), Mineral Law

Administrators (MLA), South African Mineral Resources Administration System (SAMRAD), the appeal authority of the Department of Environment, Forestry and Fisheries (DEFF) and the Applicant. Excluded were participants from Commenting Authorities and Interested and Affected Parties (I&APs). The research methodology has been detailed in **Chapter 3** of this dissertation.

1.4 Structure and outline of the dissertation

This dissertation consists of the following five chapters:

Chapter 1: Introduction

The purpose of **Chapter 1** is to provide the background and problem statement that led to this research. The research aim has been formulated to address the problem statement, and further, achieved by addressing the identified research objectives.

Chapter 2: Research methodology

The research methodology that has been adapted to address the research aim and objectives are discussed in this chapter, following the introduction in **Chapter 1**.

Chapter 3: Literature review

This chapter is a review of international and local academic publications in order to give a broad perspective of the authorisation process efficiency and associated research. The chapter starts by discussing and defining key concepts to contextualise and situate the discussion in this dissertation. It further explores the relationship between efficiency and effectiveness in relation to EIA as one of the authorisation processes. The performance of authorisation processes both internationally and locally with specific reference to efficiency is then deliberated in order to place this research within existing debates. The South African environmental legal context of prospecting is also provided in **Chapter 3**. This Chapter is concluded by the background to the prospecting process.

Chapter 4: Results/data analysis and discussion

This chapter provides the analysis of MPRDA and NEMA in order to determine the extent to which the prescribed timeframes in both the legislative framework are aligned. An overview of the selected Cases and an analysis of the actual timeframes in which the

authorisation processes are implemented in compliance with the prescribed timeframes are provided in this chapter. Key role players were interviewed, and the results of those interviews are analysed and discussed in **Chapter 4**.

Chapter 5: Conclusion and recommendation

The summary of the research results and the overall conclusion of the research are presented in **Chapter 5**. Recommendations to solve inefficiency problems and for future research are also presented in this chapter.

CHAPTER 2: RESEARCH METHODOLOGY

2.1 Introduction

Chapter 1 has introduced this dissertation by presenting the problem statement, formulating the research aim and the objectives. The research methodology used to address the objectives is also briefly described in **Chapter 1**. The chapter was concluded by outlining the structure of this dissertation. **Chapter 2** then builds from **Chapter 1**, by describing the research methodology applied to address the research aim and objectives.

2.2 Research design

The aim of the research and the objectives have been addressed using a mixed method approach, which is defined as a study that sequentially or simultaneously integrates both quantitative and qualitative elements in a complimentary manner (Almalki, 2016; Creswell, 2013; Doyle *et al*. 2012; Johnson *et al*., 2007; Johnson & Onwuegbuzie, 2004). International and local academic publications were explored in order to place this research within existing debate. The first research objective is addressed using a qualitative approach to determine the extent to which the prescribed timeframes in both the Mineral and Petroleum Resource Development Act (MPRDA) and the National Environmental Management Act (NEMA) are aligned. The second research objective is addressed using the quantitative approach to measure the actual timelines of the authorisation processes for the selected case studies (Cases) against the prescribed timeframes. The third and last research objective is addressed using the qualitative approach in the form of interviews to determine viewpoints of stakeholders in the authorisation processes efficiency problem. The adopted quantitative and qualitative research methods are depicted in **Figure 2.1.**

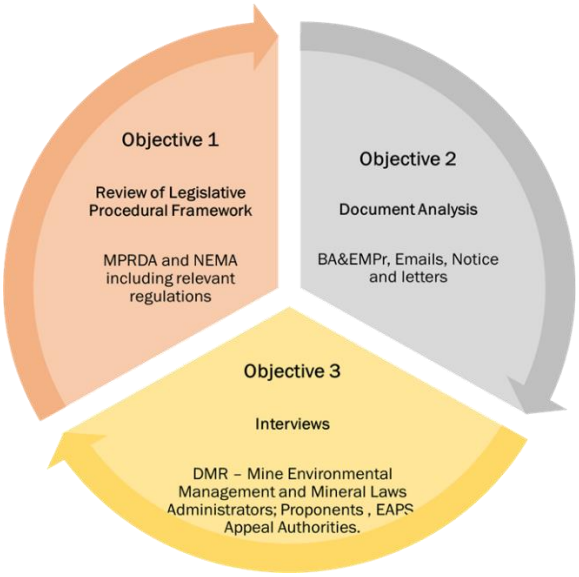


Figure 2.1: Research methods as adapted from Steenkamp (2009)

2.3 Case study selection

Case study is an appropriate methodology for this mixed methods approach research as it enables multi-faceted and extensive analysis of specific complex issues in real-life situations considering context specific factors and variables (Baxter & Jack, 2008; Crowe *et al*., 2011; Mohajan, 2018; Yin, 2003). According to Crowe *et al*. (2011), case studies (Cases) are selected based on their distinctiveness, which is of interest to the researcher and not necessarily because of their representativeness. When determining the number of Cases, there need to be a balance between the inherent time-consuming nature of case studies, and the need for dependable and robust empirical evidence provided by multiple Cases (Mohajan, 2018).

Eight Cases have been selected in the North-West Province of prospecting authorisation processes, taking into consideration the limited timeframes of this research and the need for multiple Cases to provide dependable and robust empirical evidence. The Cases were selected based on the following criteria:

1. To ensure consistency, prospecting authorisation processes submitted in one administrative jurisdiction, the North-West Province, were chosen;
2. Only prospecting authorisation processes by De Beers Group Exploration where included due to accessibility to the researcher; and

3. Only those prospecting authorisation processes that have been undertaken in terms of 2014 EIA regulations, to ensure consistency.

Seventeen prospecting right applications were submitted from January 2016 to August 2017 by De Beers to the North-West Provincial Department of Mineral Resources and Energy (DMRE). Eleven of the applications were administered and finalised without appeal from Interested and Affected Parties (I&APs), while six of those applications were challenged by I&APs through an administrative appeal process and only one of the appealed applications was challenged up to the court. The projects which were selected from the seventeen prospecting rights applications as Cases are located in Coligny, Glaudina, Hartbeesfontein, Pampierstad, Khunwana, Zeerust A and B and Swartruggens. The project locality is presented in **Figure 2.2**.

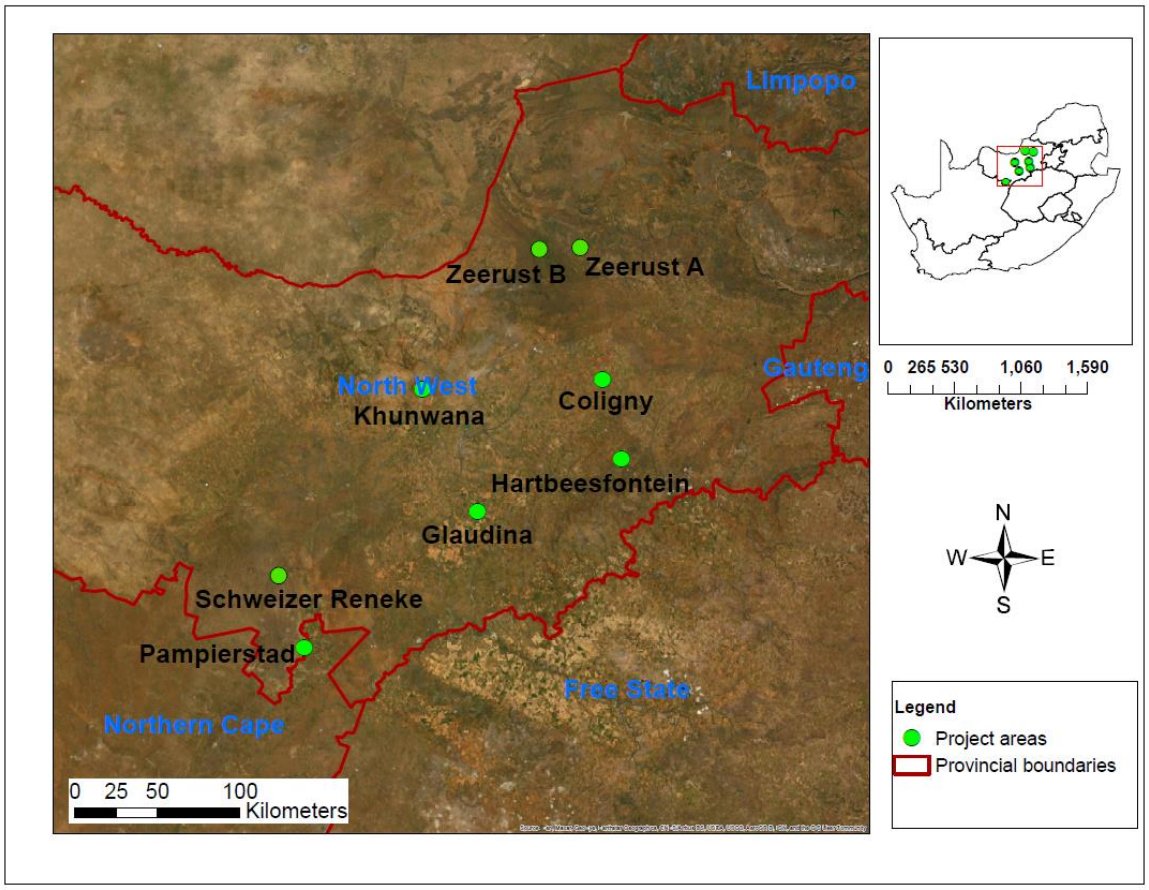


Figure 2.2: Locality map of the project areas.

The actual dates of the Cases throughout the authorisation processes have been presented in **Table 2.1**.

Table 2.1: The dates in which the various actions were implemented for the Cases

Cases (c)	1st lodged date	2nd Lodged date	EA Ack.	PR Acc.	PPP start	PPP end	BA&EMPr	EA	PPP start	PPP end	Resp. state.	Appeal Decision	Court challenge	Court decision	PR
C 1	N/A	4-Aug-17	14-Aug-17	13-Apr-18	17-Sep-17	19-Oct-17	15-Nov-17	13-Apr-18	26-Apr-18	16-May-18	N/A	N/A	N/A	N/A	22-Aug-19
C 2	9-Mar-17	4-Aug-17	14-Aug-17	8-Feb-18	19-Jan-18	19-Feb-18	9-May-18	7-Jun-18	22-Jun-18	14-Jul-18	N/A	N/A	N/A	N/A	24-Oct-18
C 3	10-Jul-16	22-Sep-16	4-Oct-16	12-Apr-17	20-Oct-16	21-Nov-16	17-Mar-17	12-May-17	24-May-17	14-Jun-17	N/A	N/A	N/A	N/A	5-Dec-18
C 4	N/A	22-May-17	29-May-17	1-Aug-17	20-Oct-16	21-Nov-16	16-Aug-17	7-Feb-18	22-Feb-18	14-Mar-18	N/A	N/A	N/A	N/A	30-Aug-18
C 5	N/A	11-Nov-16	23-Nov-16	13-Jul-17	1-Dec-16	31-Jan-17	23-Feb-17	25-Jul-17	10-Aug-17	30-Aug-17	28-Sep-17	11-Nov-17	N/A	N/A	31-Aug-18
C 6	13-Jul-17	4-Aug-17	11-Aug-17	13-Apr-18	24-Nov-16	31-Jan-17	1-Dec-17	9-Feb-18	22-Mar-18	13-Apr-18	25-Apr-18	16-Sep-18	N/A	N/A	1-Sep-19
C 7	N/A	4-Nov-16	16-Nov-16	17-Jan-17	1-Dec-16	31-Jan-17	20-Feb-17	16-Aug-17	9-Mar-18	29-Mar-18	8-May-18	6-Aug-18	N/A	N/A	22-Aug-19
C 8	9-Nov-15	16-Nov-15	9-Feb-16	11-Dec-15	1-Feb-16	10-Feb-16	19-Dec-16	10-Mar-17	20-Mar-17	20-Mar-17	6-Jun-17	9-Dec-17	5-Jun-18	2-Sep-19	1-Sep-19

For the purpose of this dissertation, the selected Cases are presented in **Table 2.2**

Table 2.2: The Percentage representation of the sample of Cases

Selected Applications	Total number	Selected as Cases	Percentage
Total Applications submitted	17	8	47%
Applications with no appeal	11	4	36%
Applications with appeal	5	3	60%
Applications with both appeal and court case	1	1	100%

Samples for Cases with no appeal and those with sample were randomly selected using the probability simple random sampling technique (Acharya *et al*., 2013)

The selected Cases are considered well representative as 47% of all applications submitted were included as part of this dissertation. With the minimum sample being 36% and maximum 100%. The Cases also covers various scenarios which authorisation processes are likely to encounter i.e. being appealed by I&APs and the application being challenged to court.

The findings of this research will be applicable to other minerals as they are governed by the same legislation, however the prospecting processes and/or methods differ for various minerals. The findings will also be applicable in other provinces, however factors such as capacity within MEM and MLA, and the specific working conditions may differ in other provinces.

2.4 Data collection

2.4.1 Review of legislative framework with specific reference to timeframes

The Mineral and Petroleum Resource Development Act (MPRDA) and the National Environmental Management Acts (NEMA) including relevant regulations were reviewed in order to answer the first research objective. This is very important for this research, as the prescribed timeframes have been used as the standard against which the Cases have been measured. The actual timeframes are measured against the standard in order to achieve the second research objective, of which the data collection method is discussed in **Subsection 2.4.2**.

2.4.2 Document Analysis

Document analysis involves systematic evaluation of both printed and electronic material in order to obtain empirical information (Bowen, 2009). The document analysis has been undertaken in combination with interviews (**Subsection 2.4.3**) in order to minimise bias and enhance credibility of this dissertation.

Documented evidence includes Basic Assessment and Environmental Management Programme reports (BA&EMPr), minutes of meetings, letters and journals (Bowen, 2009). For the purpose of this research, document analysis has been used to plot authorisation process flow graphs, in order to address the second research objective.

The following documents were reviewed:

- BA&EMPr - A report that contains information as documented in Appendix 1 of the 2014 EIA regulation (GR 982) which is inclusive of the Environmental Management Programme report (EMPr), and I&APs comments from the 30 days public participation process;
- E-mails – correspondence between the Environmental Assessment Practitioner (EAP) and the Competent Authority (CA);
- Minutes of meetings with Interested and Affected Parties (I&APs) including both commenting and CA;
- Newspaper adverts and notices as required in terms of regulation 41 (2)(c) of 2014 EIA Regulations as amended;

- Letters - correspondence between the Environmental Assessment Practitioner (EAP) and the Competent Authority (CA) – both Mine Environmental Management (MEM) and Mineral Law Administrators (MLA);
- Environmental Authorisation Documents;
- Prospecting Right Documents; and
- Appeal Decision Documents.

The documents were obtained from the archives of the Applicant which is De Beers Exploration.

2.4.3 Interviews

The results obtained in addressing the second research objective in **Subsection 2.4.2** have been supplemented by interviews with stakeholders, such as the applicant, MEM case officers, MLA and Appeal Authority officials. Semi-structured interviews were utilized to address the third research objective, which uses topic based open-ended questions (ACAPS, 2012; Kallio *et al*., 2016; Hancock *et. al*., 2001; Newcomer *et al*., 2015). The open-ended questions allowed for participants to discuss detailed problems and propose solutions for each topic under investigation (Hancock *et al*., 2001; Kallio *et al*., 2016). While there were predetermined questions, some were purposely changed to be suitable for each interviewee (Hancock *et al*., 2001; Kallio *et al*., 2016) and follow-up questions added where necessary to provide more detail (Kallio *et al*., 2016). The interviews were done in person or emailed depending on availability and preference of the interviewee.

Interviewees were purposefully sampled based on their involvement with the specific Case (s), with the following having been interviewed:

- MEM case officers;
- MLA case officers;
- Appeals & Legal Review official (Environmental Affairs); and
- Applicant

The MEM case officers were interviewed with regards to the problems faced while reviewing the Environmental Authorisation (EA) application and Basic Assessment and Environmental Management Programme reports (BA&EMPr) in order to make a decision regarding the administrative actions of issuing the EA. The MLA have been tasked with

the administrative action of granting a Prospecting Right (PR) and therefore were interviewed with regards to the problems experienced in this regard. The Appeals and Legal Review Officials from the Department of Environment, Forestry and Fisheries (DEFF) were interviewed with regards to the problems experienced with the administrative decision-making process appeal, while the applicant was interviewed with regards to the problems experienced with the application for EA and PR processes.

The aim of the interviews was to ascertain the key stakeholders' experience with regards to authorisation process efficiency for prospecting activities. Where possible Case specific circumstances that resulted in inefficiencies were determined. Additionally, the impacts of the authorisation inefficiencies on stakeholder expectations were determined. Stakeholders were further requested to provide their authorisation efficiency problems in general and how these could be improved for future projects. The interview questions were formulated using the information obtained in **Subsection 2.4.2** above. **Table 2.3** presents the broadlines of enquiries that were covered by the interview, the interview questionnaires are presented in **Annexure C**.

Table 2.3: Broadlines of enquiries that were covered by interviews

No.	The interview questions
1.	What are the problems experienced in authorisation process efficiency in the North-West Province?
2.	How aligned are the Environmental Authorisation and Prospecting Right authorisation processes and what can be done to improve such alignment if any?
3.	How can the authorisation processes be improved in the North-West Province?
4.	How does authorisation process inefficiencies in one process affect the other?
5.	What are the problems experienced with the appeal process and how can it be improved?
6.	What are the impacts of delays?

2.5 Data Analysis

The legislative frameworks were reviewed with specific reference to timeframes and such information tabulated in order to determine the degree to which the prescribed timeframes in both MPRDA and NEMA are aligned. The selected Cases were analysed by measuring the actual timeframes of each Case against the prescribed timeframes to analyse how the authorisation processes are implemented. The possible contributing factors and solutions of the results of the above were determined through interviewing selected stakeholders i.e. government officials and the applicant.

Taking into consideration the data collection method and analyses adopted for this research, three applicable ethical considerations are addressed in Section 2.6.

2.6 Ethical considerations

The ethical considerations applicable to this research are threefold as follows:

2.6.1 Permission for access to documents

Permission to have access and to use the documents required in terms of **Subsection 2.4.2** and protection of confidentiality of information such as specific location of the Cases was obtained from De Beers Group Exploration, the applicant.

2.6.2 Informed consent and protection of the identity of interviewees

All respondents participated in the research willingly and were provided with the research objectives and their role in the research, including the option to opt out of the research at any point in time see **Annexure A**. The methods of consent were either written or verbal depending on the choice of the participants, the consent form is attached in **Annexure B**. The personal information of personnel interviewed has been kept confidential. The personal information was kept confidential by ensuring that it is only available to the researcher and by replacing the name of personnel by “Interviewee 1,2,3 etc for data analysis.

2.6.3 Ethical clearance

This research is ethically cleared by the Faculty of Natural and Agricultural Sciences Ethics Committee (FNAS-REC) for 2020/2021 with Ethics Number (NWU – 01490 – 20 - A9).

2.7 Methodological limitations and problems

To inform possible future research design, the problems experienced during this research related to access to interviewees, which is similar to the problems faced by Steenkamp (2009). While some of the participants initially agreed to participate, they were later unavailable to participate in the research.

Not all identified stakeholder representative groups were interviewed i.e. the Environmental Assessment Practitioners (EAPs), Interested and Affected Parties (I&APs) and commenting authorities. Notwithstanding the non-participation of EAPs, I&APs and Commenting Authorities the sample was sufficient to meet the objectives of this research. The EAPs initially agreed to take part in this research, but later withdrew. The Commenting Authorities and I&APs were not included as part of this research as their involvement with the Authorisation Processes does not affect the overall timeframes materially.

2.8 Chapter summary

In this chapter the research methodology, selected Cases and data collection methods are described. The number of Cases were selected based on the need to have multiple Cases and the limited timeframes of this research. The next chapter will place this research within existing debate by reviewing international and local literature on efficiency. The South African legislative framework of prospecting right applications is also discussed in **Chapter 3**.

CHAPTER 3: LITERATURE REVIEW

3.1 Introduction

The methodology that has been adopted to address the research aim and objective have been described in **Chapter 2**. This chapter contextualizes this research within existing debate by reviewing international and local publications.

3.2 Overlap between effectiveness and efficiency of EIA

Environmental Impact Assessment (EIA) is the main tool utilized to consider, investigate, assess and report potential environmental impacts of proposed projects (Kidd *et al*. 2018). EIA is a participatory decision-making tool that enables the identification of projects' positive and negative socio-economic and environmental impacts, but also the opportunities and constraints to projects because of environmental conditions (DEA&DP, 2013; Oosterhuis, 2006; Ross *et al*. 2006). The assumption that the advantages of EIA are greater than the associated costs is believed to be the basis for the extensive adoption of EIA globally (Oosterhuis, 2006; Retief & Chabalala, 2009). The advantages of EIA have been documented by Saidi (2010) and can be linked directly to the stakeholder's expectations, as described by Bond *et al*. (2018), presented in **Table 3.1**, below:

Table 3.1: Expectations of stakeholder from the EIA process by Bond *et al*. (2018)

Applicant	I&APs	Decision-Makers
• Outcome certainty • Costs effectiveness • Adherence to timeframes and minimum delays.	• To have their right protected, such rights include environmental right in terms of section 24 and right to have access to information in terms of section 32 of the Constitution of South Africa. • Adherence to timeframes and minimum delays.	• Adherence to timeframes and minimum delays. • Information that enables decision-making. • Concise manageable information • Unnecessary information be avoided.

An overview of EIA effectiveness is provided herein, in order to demonstrate the overlap between effectiveness and efficiency. Effectiveness is defined as EIA working satisfactorily in order to achieve its intended purpose which is to ensure that environmental considerations are incorporated into decision-making, in order to contribute to sustainable development (Husselmann, 2016). EIA effectiveness has been conceptualized into four dimensions which include procedural, substantive, normative and transactive (Bond *et al*. 2018; Chanchitpricha & Bond, 2013; Husselmann, 2016; Loomis & Dziedzic, 2018), discussed as follows:

- *Procedural effectiveness* aims to ascertain the extent to which established provisions, process structure, principles and policy are applied in the EIA process (Chanchitpricha & Bond, 2013; Husselmann, 2016; Loomis & Dziedzic, 2018). Availability of resources, active public participation, knowledge and experience of Environmental Assessment Practitioners (EAP), political context and policy framework are factors that influence procedural effectiveness (Chanchitpricha & Bond, 2013).
- The aim of *substantive effectiveness* is to assess the extent to which the EIA process achieves its intended goals of enabling robust decision-making and with the outcome being reduced negative environmental impacts (Bond *et al*. 2018; Husselmann, 2016; Loomis & Dziedzic, 2018). The factors that substantive effectiveness depends on, include decision-making regulatory framework, quality and accuracy of Environmental Impact Assessment Report (EIAr), decision-making contextual mechanisms and public participation (Chanchitpricha & Bond, 2013).
- *Normative effectiveness* aims to evaluate the extent to which the principles of the society and individuals are achieved through EIA (Chanchitpricha & Bond, 2013; Husselmann, 2016). The main factors that influence normative effectiveness include practice, individual expectations, existing conditions, policy and culture (Chanchitpricha & Bond, 2013). A normative study by Loomis and Dziedzic (2018) highlighted the need for separate dimensions such as pluralism and trade-offs due to the fact that more sustainability outcomes are not achieved by greater stakeholder participation.
- *Transactive effectiveness* has been described by Bond *et al*. (2018:51), as "*To what extent, and by whom, is the outcome of conducting Impact Assessment considered to be worth the time and cost involved*?" and by Chanchitpricha and Bond (2013:43) as "*reaching the intended outcome timeously and within budget*".

It is therefore apparent that transactive effectiveness is related to efficiency as alluded to by Chanchitpricha and Bond (2013), efficiency being defined in project management in terms of the “Iron triangle” consisting of costs, time and quality (Atkinson, 2002). Efficiency has also been described by Fischer (2015) to include costs, time and resources, Resources include infrastructure, technology, natural resources, human resources and financial resources (ISO, 2015). The “Iron Triangle” and Fisher’s definition of efficiency link directly with transactive effectiveness of Impact Assessment.

Chanchitpricha and Bond (2013) have demonstrated the interlinkages between the four dimensions through the “logic model”. Bond *et al*. (2018) found that procedural and transactive effectiveness overlaps with EIA quality, which in terms partially overlaps with normative effectiveness. Substantive effectiveness is achieved through high quality EIA process, but does not overlap with quality (Bond *et al*. 2018). Effectiveness has been defined in terms of its four dimensions to be the extent to which established provisions are applied in the EIA process (procedurally) to achieve its intended goals (substantively) in a resource effective manner (transactive) while taking into consideration the principles of society and individuals (normative) (Chanchitpricha & Bond, 2013). Transactive effectiveness being efficiency has received little attention from researchers (Chanchitpricha, & Bond, 2013; Loomis & Dziedzic, 2018; Retief & Chabalala, 2009) and it is the focus of this research. Therefore, for the purpose of this research, efficiency has been defined in terms of timeous decision making, cost implication of the delays and the degree to which the stakeholders’ expectation with regards to timeframes are met.

3.3 International debates with regards to the efficiency of authorisation processes

EIA is overburdened and criticized for delaying development, for being time consuming and for being expensive (Bond *et al*. 2014; Hunsinger, 2018; Middle & Middle, 2010, Middle *et al*. 2013). It is for this reason that governments in many countries are in a quest to improve the efficiency of decision-making for development projects through EIA streamlining (Middle *et al*. 2013; Fonseca *et al*. 2018) and simplification (Fonseca & Rodrigues, 2017) in order to stimulate economic growth and to create jobs (Morgan, 2012). EIA reforms to improve efficiency of the decision-making process have had both direct and indirect effects on the benefits of EIA in various countries (Bond *et al*. 2014),

which are discussed below, using examples from Australia, Canada, United State and Brazil:

The drive to improve EIA efficiency in Australia was found to have resulted in reduced quality of EIA process in two of the three states in which the research was conducted (Middle *et al.* 2013). Improved efficiency was achieved at the expense of a reduced standard of scoping and public participation for both Queensland and South Australia. In Queensland, improved efficiency as a result of environmental legislation streamlining was achieved at the expense of significant reduction of public participation, poor EIA follow-up and poor decision making as a result of poor Environmental Impact Assessment report (EIAr). The lower standard of scoping in South Australia was related to loss of public participation (Middle *et al*. 2013). Time-consuming phases of EIA were found to be scoping, production of EIAr, appeals and Public participation processes (Middle and Middle, 2010). The authors believe that the time-consuming phases are not expected to change over time.

In Canada, Greig and Duinker (2011) stated that gradual reduction in EIA costs should be experienced with the implementation of strong science as this will reduce uncertainties. More EIAs conducted in a specific geological area are more likely to reduce uncertainty than a single EIA, and therefore save costs and improve efficiency. Significant EIA cost reduction has been attributed to development of codes of practice for specific types of impacts that are well understood (Greig & Duinker, 2011). Bond *et al*. (2014) found that the benefits of the EIA system in Canada were being eroded because of Impact Assessment (IA) streamlining by the state in the five years prior to 2014. Evidence of reduced EIA benefits relates to increased inconsistencies resulting from flexible powers to undertake EIA in Canada. Canada's amended legislation also resulted in EIA processes being unable to effectively link the development with the affected environment (Bond *et al*., 2014). Repetitions, overlaps and contradictory authorisation conditions were reported by Horvath and Barnes (2015), when the EIA process is not aligned with existing Environmental Regulatory and Management Frameworks of Canada. Recommendations to improve EIA efficiency included increased scoping timeframes, consideration of existing prohibitions and permit obligation earlier in the scoping phase, and co-operation between Environmental Assessment Practitioners (EAP) and competent authorities earlier in the project initiation (Horvath & Barnes, 2015).

In the United States (US) the need to expedite EIA in order to fast track new developmental projects and facility expansions has resulted in omission of significant environmental impacts, if supplementary resources are not supplied or the current procedural requirements are not relaxed (Hunsinger, 2018). The omission of significant environmental impacts may result in legal contests, which will cause delays in project developments, or result in significant environmental impacts, if it goes unchallenged (Hunsinger, 2018). Streamlining and expediting (i.e. enhanced efficiency) EIAs are more suitable for expansion and upgrades of facilities where environmental impacts are predetermined, than for new projects (Hunsinger, 2018).

Simplification of EIAs in the southern states of Brazil was found by Fonseca and Rodrigues (2017) to be mainly procedural and regulatory amendments. This was done to expedite the decision-making process and to reduce the administrative burden without compromising environmental protection. The latter is however being disputed as policy effects are not systematically monitored on the ground, which is attributed to insufficient resources for conducting inspections and audits (Fonseca & Rodrigues, 2017). Fonseca *et al*. (2018) state that a key requirement for Brazil's EIA reform is capacity building, because of the low institutional capacity of government. The short- and long-term effects of Brazil's proposal to simplify and streamline EIAs are uncertain, but they have neither prioritised an area in need of relevant and urgent improvement, nor have they provided solutions to technical, budgeting and political barriers to an effective and efficient EIA system (Fonseca *et al.* 2018).

EIA efficiency has been defined and linked to the four dimensions of EIA effectiveness in this subsection. The international debate has been found to have mixed results of streamlining EIA in order to improve EIA efficiency. Such results include reduced quality and benefits of EIA, its cost effectiveness as a result of strong science and ineffective EIA resulting in poor decision making. It therefore becomes important to investigate the efficiency of EA processes. This dessertation then aims to contribute to the efficiency debate by investigating the extent to which EA and Prospecting Right (EA) applications are efficiently implemented in the North-West Province. The South African debates on EIA efficiency are discussed below, which builds on the international debates.

3.4 South Africa's debate with regards to efficiency of authorisation process

The Republic of South Africa (RSA) is a developing country that needs land and infrastructural development to grow its economy, which will enable the country to solve socio-economic problems such as poverty, high unemployment and inequality. The aim of EIA is to promote socio-economic and biophysical benefits of development through integrated, effective, consultative and sustainable decision-making processes (Kotze & van der Walt, 2003). It then becomes imperative for EIA to be efficient and thus the country's EIA debates are discussed below, in order to place this dissertation within existing local debate.

In a study to assess the alignment and efficiency of planning and EIA authorisation, Steenkamp (2009) found that Planning Authorisation and EA processes are implemented independently for a single developmental project. In the study, it was found that EA processes were more efficient than Planning Authorisations. This is because the average delay in project development was found to be one month and ten months as a result of EA and Planning Authorisation processes, respectively (Steenkamp, 2009). Due to delays the planning authorisations were received after environmental authorisations, notwithstanding the fact that they were submitted four months prior to the EA applications being lodged (Steenkamp, 2009).

The efficacy study conducted by Montgomery is related to EIA efficiency in that its objective is to investigate efficacy of EIA process in relation to costs and time. Montgomery (2015) found that legislative changes that take place while the project is underway, were the main contributing factors to delays in EIA processes and decision-making. The delays were attributed to the introduction of new listing activities, which are applicable to the project, but were not at the start of the project. The study also confirms the findings of Retief and Chabalala, (2009), that the direct EIA costs in the country compared favourably with the international EIA system, but are mostly lower (Retief, & Chabalala, 2009). Retief and Chabalala (2009) and Montgomery (2015) found that small companies are overstretched financially by legislative requirements, with some even going under, as a result of significant impacts of legislative requirements. Retief and Chabalala (2009) found that small-scale projects constitute a great number of EIAs conducted in the country. Screening has been identified as a mechanism in the country's EIA system that can direct EIA resources and time towards large projects and away from small to medium sized projects (Retief & Chabalala, 2009).

Bond *et al*. (2014) conducted a study in South Africa to assesses the effect of EIA streamlining by government to improve EIA process efficiency, as it had been criticized by various stakeholders, as a burden for economic development. Mixed results were found in that the strong sustainability mandate of South African legislation is regarded as a benefit of streamlining, while the overly prescriptive nature of the legislation is regarded as reduced benefits of the South African EIA system (Bond, *et al*. 2014). This view has been confirmed by Kidd *et al*. (2018) where they state that it is not considered appropriate to have too many prescriptive regulatory requirements in relation to EIA, as scope and complexity differ significantly depending on the proposed development. While Kidd *et al*. (2018) welcome the timeframes as introduced by the 2014 EIA regulations, they however indicate that the inflexibilities of the current EA system may present some problems.

In conclusion, South Africa's EIA system has been criticised for delaying the much-needed land and infrastructural development. EIA efficiency studies in South Africa have demonstrated that EIA processes are mostly implemented efficiently with minimum delays. The legislative framework was found to have both positive and negative elements in that it was found to have strong sustainability element, but also found to be too prescriptive. While south Africa's EIA cost compared favourably to international standards, the EIA system was found to overburn small companies.

Prospecting activities require both EA and PR which are governed by two legislative frameworks. The legislative framework governing the prospecting activities are therefore discussed in **Subsection 3.5** below.

3.5 South Africa's Legislative procedural framework for EIA

South African has a unique dual environmental management system as a result of the different route of the development of mining industry's EIA system and the fact that the Department of Mineral Resources and Energy was the competent authority for mining EIA (Sandham *et al*. 2008). The country's dual EIA system has matured through extensive revision (Morrison-Saunders & Retief, 2012). This research is focused on a small portion of one part of the dual EIA system, namely mining with specific reference to prospecting activities. It is for this reason that the environmental legislative context of prospecting authorisation processes is briefly discussed herein. The evolution of the dual EIA system is presented in **Figure 3.1** and **Figure 3.2**.

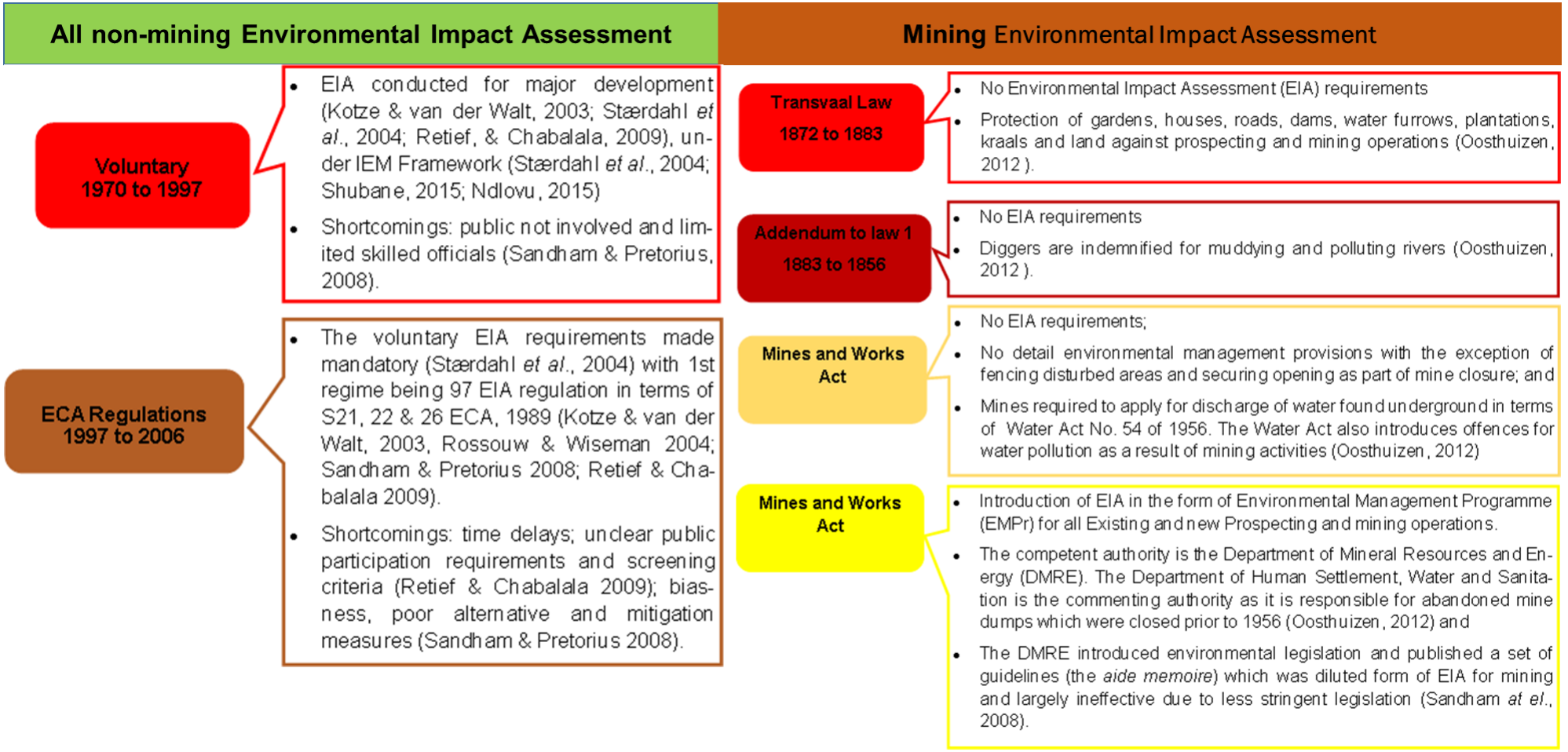


Figure 3.1: The evolution of the dual EIA System

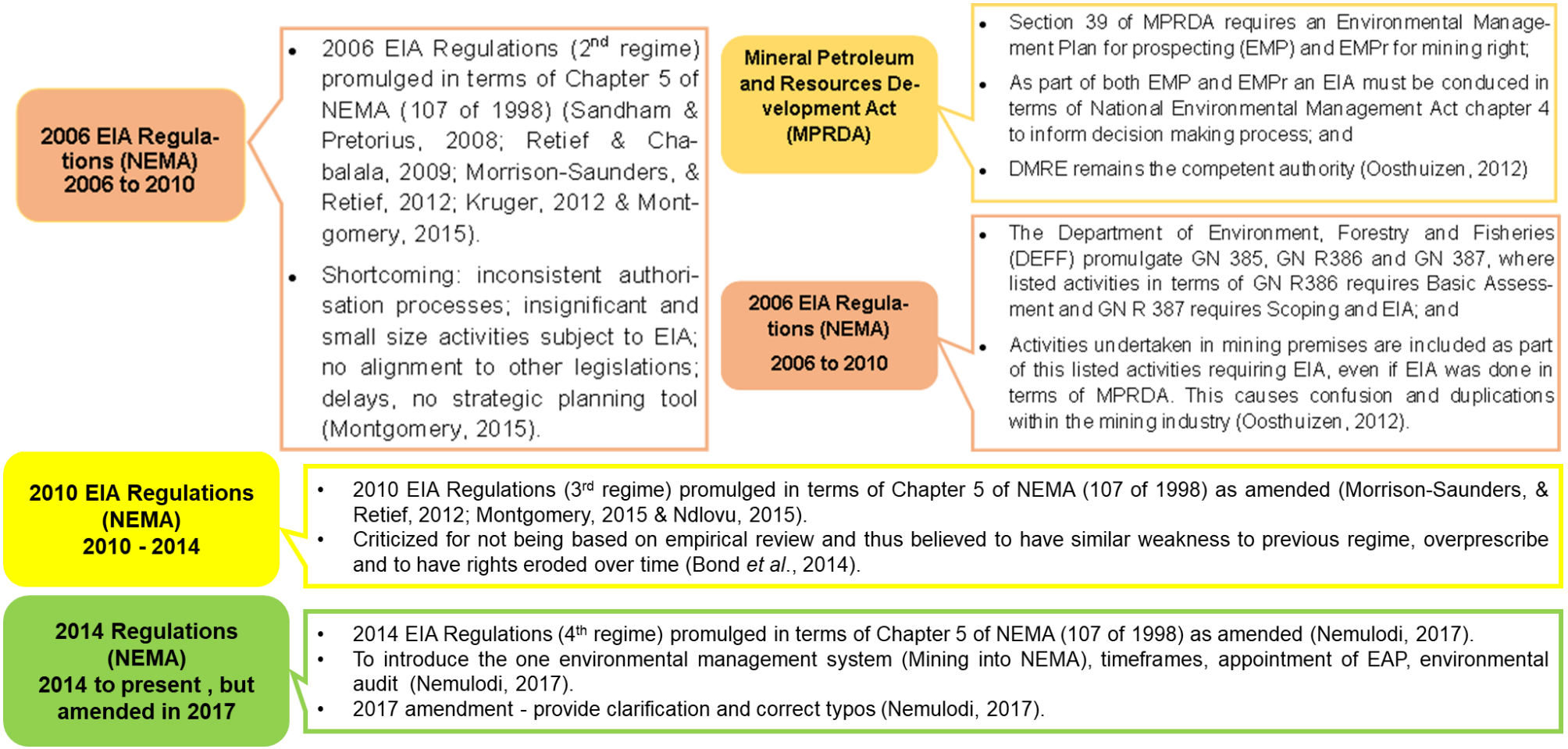


Figure 3.2: The evolution of the dual EIA system continued.

The evolution of the EIA system for non-mining activities is presented in **Subsection 3.5.1**, while that of the mining EIA is presented in **Subsection 3.5.2**. The Current regulatory framework for Prospecting right applications is presented in **Subsection 3.5.3**.

3.5.1 The evolution of the Environmental Impact Assessment for all non-mining activities

The first formal Environmental Impact assessment (EIA) system was introduced by the United State Environmental Policy Act on the first of January 1970 and was thereafter adopted by numerous counties (Cashmore, 2004; Sandham, *et al*. 2013). South Africa is one of those countries that adopted the system, having conducted several voluntary EIA for major developmental projects since 1970 for over two decades. The country's EIA discussion can be attributed to a handful of dedicated academics and professionals who published numerous articles in the early 1980s (Stærdahl *et al*., 2004). EIA in South Africa was first mandated in 1997 through a set of regulations in terms of Environment Conservation Act (ECA), No. 73 of 1989 (Morrison-Saunders & Retief, 2012; Sandham, 2008). ECA was partially repealed by the National Environmental Management Act (NEMA), No 107 of 1998, with 1997 EIA regulations and few sections including 21, 22 and 26 remaining in force (Sandham *et al.* 2008).

The Constitution of the RSA (Act 108 of 1998), which followed the country's democratic dawn in 1994 requires the government to protect the environment in terms of Section 24(b). The environmental protection is achieved through appropriate legislation and other measures to prevent pollution and ecological degradation, including the promotion of conservation and sustainable use of ecological and natural resources for the benefits of current and future generations (Ie Roux, 2011; Oosthuizen, 2012).

The principal legislation which gives effect to the above constitutional requirement is NEMA, which also makes provision for co-operative governance to ensure holistic decision-making. NEMA come to effect fully in 2006 with its then new EIA regulations repealing the remaining sections of ECA and the 1997 EIA regulations (Sandham *et al*., 2008). The legislative framework of NEMA allowed for promulgation of Specific Environmental Management Acts (SEMAs) by departments such as Department of Mineral Resources and Energy (DMRE), and Department of Agriculture, Land Reform and Rural Development (DALRD) (Sandham *et al*., 2008). The designated competent authority for EIA authorisation since it became mandatory in South Africa was National

and various Provincial Environmental Departments for all listed activities except mining, which shall be discussed in **Subsection 3.5.2** Below.

The 2006 EIA regulations focused on the question of South Africa's EIA effectiveness (Sandham & Pretorius, 2008). Those EIA regulations were repealed in 2010 with the third regime of the EIA regulations promulgated in terms of **Chapter 5** of NEMA, due to various shortcomings such as inconsistent of the authorisation processes, no alignment to other regulations and small sized activities subjected to EIA. The 2010 EIA regulations were introduced to improve efficiency in order to expedite the decision-making through quicker EIA processes (Bond *et al*., 2014).

The 2010 EIA regulations were repealed by the 4th regime of EIA regulations on the 8th of December 2014. The aim of the 2014 EIA regulations was to introduce the One Environmental Management System (OEMS), which came into effect as agreed-upon by the Ministers responsible for environmental affairs (DEFF), mineral resources (DMRE) and water resources (DHSWS). The OEMS moved all environmental provisions except for mine closure section 43, from MPRDA to NEMA. Regulatory frameworks, as well as norms and standards for the OEMS are set by the DEFF with the DMRE being the competent authority that implements those provisions for PR. DEFF is the appeal authority for PR appeals. DWAS remains the competent authority for Water Use Licence Applications (WULA) (Nemulodi, 2017).

3.5.2 The evolution of the mining Environmental Impact Assessment

Mining in South Africa has unfortunately left an enormous economic, social and environmental legacy in South Africa. This is attributed to the early legislation mainly focusing on surface rehabilitation, but with the primary emphases on the economic gains from mining activities (Swart, 2003). This is evident in that the first "pre-union' legislations' relevance to environmental management was with regards to the protection of land owners against damages due to mining activities. The Transvaal Law 2 of 1872 extended the protection of property owners to includes protection of roads, dams, water furrows and plantations. The addendum to Law 1 of 1883 however indemnified diggers for muddying and polluting river waters (Oosthuizen, 2012). The Mines and Works Act of 1956 also provided no detail environmental management provisions other than the requirements to fence disturbed areas and secure openings as part of mine closure. In the same year mines were required to apply for discharge of dewatering water in terms of Water Act No

54 of 1956. The Water Act also introduced offences for water pollution as a result of mining activities (Oosthuizen, 2012). The Minerals Act No 50 of 1991 was the first to require some form of EIA in terms of a Layout plan and Rehabilitation programme in terms of Section 39 for prospecting and mining authorisation.

The amendment of Minerals Act No. 50 of 1991 in 1993, then provided for comprehensive legislative requirements and enforcement of environmental protection in South Africa (RSA) for prospecting activities and mining alike (Swart, 2003). The legislative requirement and enforcement were through section 39 of the Mineral Act, which required a PR holder to conduct and rehabilitate the land in which PR activities are undertaken in accordance with the approved Environmental Management Programme report (EMPr) (Swart, 2003). The DMRE then introduced an environmental legislation and published a set of guidelines (*the aide memoire*) which was a form of weak EIA for mining (Oosthuizen, 2012). The competent authority for prospecting and mining authorisation is the DMRE. Regulation 801 promulgated in Government Gazette No 201219 of 1999 made provision for monitoring and performance assessment (Swart, 2003). PRs under the Act were valid for a year but easily renewable (Cawood, 2004).

The Mineral and Petroleum Resource Development Act (MPRDA) No. 28 of 2002 made provision for the adoption of NEMA Principles by the mining industry in terms of section 37. It also affirms the State's responsibility to protect the environment and ensure ecological sustainable development of mineral resources, to promote socio-economic development for the benefits of current and future generations (Swart, 2003). The need to recognize that mineral resources are non-renewable is made in the MPRDA. This presents a problem for the DMRE as it has conflicting dual roles i.e. the protection of the environment versus exploitation of mineral resources. Section 39 of MPRDA requires an Environmental Management Plan (EMP) for prospecting activities and EMPr for mining activities, with the Competent Authority being DMRE (Oosthuizen, 2012). The EMP is required to enable the competent authority to take into consideration environmental impacts of prospecting including associated mitigation measures in the decision-making process (Husselmann, 2016). Consultation with other state departments such as Department of Environment, Forestry and Fisheries (DEFF), Department of Agriculture, Land Reform and Rural Development (DALRD) and Department of Human Settlements, Water and Sanitation (DHSWS) is provided for in terms of section 40 of MPRDA, which talks to NEMA's cooperative governance (Oosthuizen, 2012).

In 2006 the Department of Environmental, Forestry and Fisheries (DEFF) promulgated the 2006 EIA regulations with the listed activities including prospecting in terms of listing activity 8 of listing Notice 386 (Oosthuizen, 2012). The 2006 EIA regulations also include reconnaissance, prospecting, mining and retention operations as part of listed activities. The inclusion of prospecting and mining activities into the 2006 EIA regulations causes confusion to the mining houses as those activities were previously regulated in terms of Mining laws discussed above (Oosthuizen, 2012). Both NEMA and MPRDA were amended in 2008 to exclude environmental provision from MPRDA and to regulate mining activities' environmental aspects in terms of NEMA (Fischer, 2015; Oosthuizen, 2012). NEMA amendments came in to effect in 2009, but MPRDA was delayed, notwithstanding the fact that it was signed by the presidency in the same year (Humby, 2015 & Oosthuizen, 2012). This creates another problem of dealing with two legislative requirements for the same activity. The third EIA regime came into effect in 2010, which included only prospecting (excluding retention and mining, unlike the 2006 EIA regulations) as listing 19 in Listing Notice 544, which requires BA & EMPr (RSA, 2010). The subsequent EIA regulatory regime is under the 2014 EIA Regulations, including the 2017 amendment, which have been discussed in **Subsection 3.5.2** above and include prospecting and mining activities.

3.5.3 The current legislative framework for Prospecting Right application

Application for PR is undertaken in terms of Section 16 (1) which states that the application must be lodged simultaneously with an EA application to DMRE regional office together with the stated application fee (MPRDA, 2017). At the time of this research, EA applications were undertaken in terms of regulation 19 and 20 of the 2014 EIA regulations (RSA, 2017). Therefore, a BA&EMPr is required as triggered by the listed activities in **Table 3.2**.

Table 3.2: Listing activities applicable to prospects rights (RSA, 2017)

Activity No	Activity description
	GN 983 as amended by GN 327
20	"*Any activity including the operation of that activity which requires a* ***prospecting right*** *in terms of section 16 of the Mineral and Petroleum and Resources Development Act, 2002* *(Act No. 28 of 2002), including—* *(a)* ***associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource****; or* ***(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing".***
	This is the main listing for prospecting activities and as such was triggered by all the case studies.
27	*'The* ***clearance of an area of between 1 and 20 hectares of indigenous vegetation.***
	Case studies 1, 2 and 3 has four anticipated drill sites, while case studies 4, 5 and 7 has three anticipated drill sites and Case study 6 and 8 has two anticipated drill sites. The total area to be disturbed for those case studies with anticipated four drill sites is 2.56 ha, while those with three will disturb 1.92 ha and 1.28ha for those case studies with two anticipated drill sites. Therefore, all the case studies triggered this listed activity.

All the selected Cases triggered the two listed activities 20 and 27. This is because the Cases had footprint over 1 ha. The background to the prospecting process is discussed in section 3.6.

3.6 Background to the prospecting process

Kimberlite prospecting projects were selected to investigate the extent to which Environmental Authorisation (EA) and Prospecting Rights (PR) processes are efficiently implemented in the North-West Province. The research objective was addressed using a mixed methods research approach. It therefore becomes imperative to give some background into Kimberlite prospecting.

Prospecting is preceded by the Reconnaissance Operation which is the searching for minerals by airborne geophysical surveys in the method known as remote sensing. Reconnaissance Operation involves the use of geological, geophysical and photogeological surveys to locate geological structures such as faults or geological

contacts that host minerals (MPRDA, 2002; GDACE, 2008). Should the results of Reconnaissance Operations become positive, an application for prospecting is made.

Kimberlite prospecting is dynamic and goal oriented. Prospecting activities are undertaken in phases (see **Figure 4.1**) and the result cannot be foreseen. Prospecting Working Programme (PWP) can be stopped at any phase and the area rehabilitated, should the results of the previous phase prove undesirable or unviable (Baxter, 2016). Both invasive and non-invasive methods are employed to prospect for Kimberlite. Non-invasive methods include desktop studies and ground geophysical surveys, while Invasive activities involve drilling, which is undertaken in two phases namely Diamond Core Drilling (DCD) and Reverse Circulation Large Diameter Drilling (RC LDD) (Higgitt & Nel, 2015; Baxter, 2016).

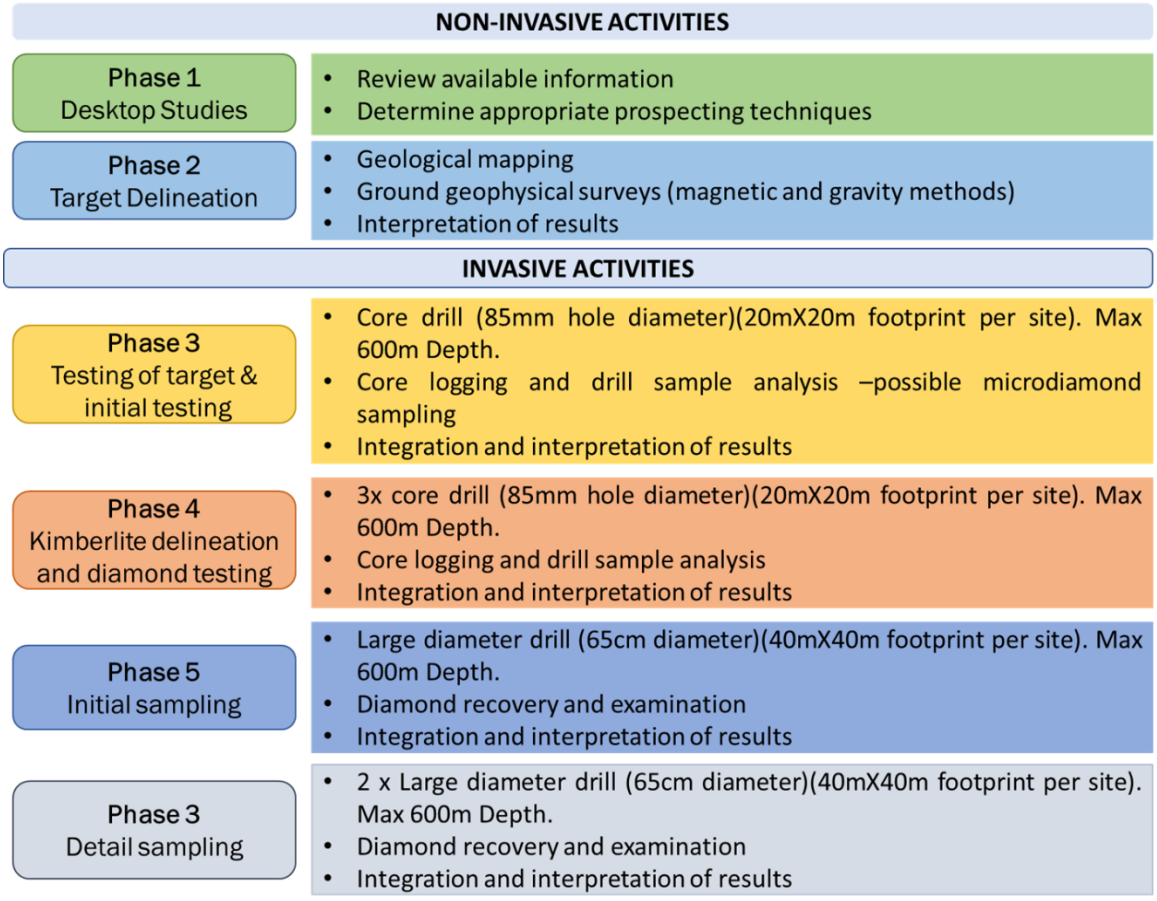


Figure 3.3: Summary of prospecting right activities

4.1.1 Non-Invasive activities

a. Desktop studies

The review of existing databases as obtained from Council of Geoscience and/or as obtained through airborne geophysical surveys in Reconnaissance Operations (Higgitt & Nel, 2015; Baxter, 2016).

b. Target delineation

Positive targets from the desktop studies are tested using Ground Geophysical Surveys. The Ground Geophysical Surveys are used to test targets by delineation using small potable instruments which record the electromagnetic, gravitational and magnetic fields over an anomaly of interest (GDACE, 2008). Gravity and electromagnetic survey lines are spread-out 100m apart, with measurements recorded every 50 m along a defined survey line. The magnetic survey lines are recorded at 5 m intervals along defined survey lines, with lines spread-out 50 m apart (Baxter, 2016). Once non-invasive activities have been concluded, the data is processed and interpreted to provide information that aids decision-making. Should the results be negative the process is stopped, and a closure application is applied for. However, should the results be positive the Prospecting Work Programme (PWP) continues to the next phase. Non-invasive methods have minimal environmental impact and they are short-lived (Higgitt & Nel, 2015; Baxter, 2016). Impacts of non-invasive methods are comparable to those of hiking, as ground geophysics involves a team of four to six individuals walking on the defined survey line (Baxter, 2016). Impacts of hiking are well documented by Guo *et al*. (2015); Lynn and Brown (2003); Pickering *et al*. (2010); Runkowski, (2015) and Törn *et al*. (2009).

4.1.2 Invasive activities

c. Testing of target and initial testing

One Diamond core drilling (DCD) usually produces a 63.5 mm core, which is drilled to a maximum depth of 400 m, dependent on geology and type of anomaly (Baxter, 2016). The environmental foot print of DCD is 20m x 20m^2 or 0.4m^2. The core is logged, and samples are taken to the laboratory to test for indicator minerals and possible microdiamond sampling. The results are interpreted, should the result be positive then the PWP continues, but if the geological structure is not a Kimberlite

or the Kimberlite has no microdiamonds the project is stopped, and the area rehabilitated.

d. Kimberlite delineation and diamond testing

The same drilling as above but this time three holes are drilled. The core is logged, and samples taken and analysed to increase confidence of the results received above. The process project is stopped should the Kimberlite be small, has low diamond interest or be without microdiamonds. Should the results be positive then the process continues to the next stage.

e. Initial sampling

Reverse Circulation Large Diameter Drilling (RC LDD) produces a core of 610 mm in diameter and can be up to 600 m deep, depending on geology and type of anomaly. The environmental footprint for drilling activities is limited to 0.64 ha. Macro diamonds are recovered for examination, and should they be of low quality, the process is stopped.

f. Detail sampling

The same drilling as above but this time two holes are drilled to for more confidence. Eight inclined DCD may also be drilled to confirm the size of the Kimberlite as compared to the size determined using the ground geophysical surveys.

The environmental impacts of invasive activities include potential hydrocarbon spillages, disturbance of heritage artefacts, clearing of vegetation, spillages of sludge, ground and surface water pollution and waste (Baxter, 2016; GDACE, 2008 & Higgitt & Nel, 2015).

For the purpose of this research, Cases were selected in the North-West Province to investigate the extent to which prospecting authorisation processes were efficiency implemented, including four case studies of authorisation processes with *no appeal*, three case studies with *appeal* and one with a *court case* as detailed in **Chapter 3**. In **Section 4.2** the legislation and associated regulations are reviewed as detailed in **Subsection 2.4.1** in order to achieve the first research objective.

3.7 Chapter conclusion

The EIA efficiency debates have demonstrated mixed results with regards to the impact of EIA streamlining in order to improve EIA efficiency. Such impacts ranged from positive i.e. strong sustainability elements, uncertainty in the case of Brazil's proposal to simplify and streamline EIAs and to negative i.e. reduced quality and benefits of EIA. The EIA efficiency debates were then followed by the review of the legislative framework of EIA in South Africa. The legislative framework review is very important in this context as it is the major contributing factor to inefficiencies of EIA in South Africa due to the dual historic nature of South African EIA system that resulted in EIA being fragmented. This chapter is ended by providing the Kimberlite prospecting background for the selected Cases. With this research having been placed within existing debate, it then leads to the data analysis and discussion of the results in order to address the research objectives in **Chapter 4**.

CHAPTER 4: DATA ANALYSIS AND DISCUSSION

4.1 Introduction

Environmental Impact Assessment (EIA) efficiency and its relation to effectiveness have been discussed in **Chapter 3**. This was followed by the international and South African debates on the efficiency of EIA. **Chapter 3** was concluded by discussing the legislative framework of prospecting activities in South Africa. This chapter then addresses the research objectives

4.2 Timeframes for prospecting authorisation processes

The first research objective as outlined in **Chapter 1** is addressed here by reviewing the Mineral and Petroleum Resource Development Act (MPRDA) and National Environmental Management Act (NEMA) together with related regulations in order to determine the degree to which the prescribed timeframes in both MPRDA and NEMA are aligned.

The timeframes for the prospecting right authorisation processes are summarised in **Table 4.1.** as prescribed in terms of both 2014 EIA regulations and the MPRDA.

Table 4.1: The prescribed timeframes contained in both NEMA and MPRDA

NEMA requirements	Prescribed timeframes	MPRDA requirements
Compilation of the Environmental Authorisation (EA) application and Draft Basic Assessment and Environmental Management Programme report (BA&EMPr).	_	Compilation of Prospecting Work Programme (PWP), Black Economic Empowerment (BEE) proposal, and Mine Health and Safety Act (MHSA)
EA application	Simultaneous	PR application
Department of Mineral Resource and Energy's Mine Environmental Management (MEM) considers the EA and acknowledges if it met the requirements of the National Environmental Management Act, 2014 Environmental Impact Assessment Regulations.	14 days	Department of Mineral Resource and Energy's Mineral Law Administrators (MLA) considers the PWP to determine if there's existing right for the same mineral or not. Then accept if there's no existing right for the same mineral.
Public Participation Process (PPP) - making the draft BA&EMPr available for comments and addressing the concerns, issues raised by Interested and Affected Parties (I&APs) and incorporating the results of PPP into the BA&EMPr	30 days	_
Submission of BA&EMPr (the time is inclusive of the above PPP)	90 days	_
Competent Authority (CA) reviews and considers the BA&EMPr for decision Making	107 days	_
Notification of I&APs of the CA's decision	14 days	_
Opportunity to appeal the CA's decision	20 days	_
Responding to the appeal by the Environmental Assessment Practitioner (EAP) and Department of Mineral Resource and Energy's Mine Environmental Management (MEM).	20 days	_
Appeal decision	50 days	_
Court challenge	180 days	_
Oppose court challenge	10 days	_
Court verdict	180 days	_
PPP	30 days	_
_	30 days	DMRE's Mineral Law Administrators (MLA) considers Compilation of Prospecting Work Programme (PWP), Black Economic Empowerment (BEE) proposal, Mine Health and Safety Act (MHSA) and await EA decision in order to make a decision for the Prospecting Right (PR).

Note: *The timeframes in the middle column are applicable to both NEMA and MPRDA.*

It is clear from the **Table 4.1** that both MPRDA and NEMA prescribe timeframes for each stage of the authorisation process to be adhered to by all stakeholders i.e. EAPs, Interested and Affected Parties (I&APs), commenting authorities, competent authority and appeal authorities. The prescribed timeframes for both the legislative frameworks are aligned in principle. However, the simultaneous submission of both Prospecting Right (PR) and Environmental Authorisation (EA) applications in practice presents a problem, as an application can be acknowledged by Mine Environmental Management (MEM) to kick-start the EIA process, without taking into consideration the administrative decision by Mineral law Administrators (MLA) to accept or reject the PR application. Should MLA reject the application in terms of section 16(3) of MPRDA, then the acknowledgement and/or any other work that may have been conducted for the EIA process is rendered worthless. In terms of Section 16(3) of the MPRDA, the Regional Manager must notify the applicant within 14 days of receipt of an application of the fact that the application does not meet the requirements of section 16 where applicable (RSA. 2009). Such requirements include:

- An Application must be made to the office of the Regional Manager in whose Region the land is situated;
- The application must be made in the prescribed format;
- The application must be accompanied with the prescribed non-refundable;
- No other person holds a prospecting, mining right, mining permit or retention permit for the same mineral and land; and
- No prior application for a prospecting right, mining right, mineral permit or retention has been accepted for the same mineral on the same land and which remains to be granted or refused (RSA. 2009).

Table 4.2: The proposed practical timeframes for EA and PR authorisation processes

NEMA requirements	Prescribed timeframes	MPRDA requirements
–	–	Compilation of Prospecting Work Programme (PWP).
		Prospecting Right (PR) application
Compilation of the Environmental Authorisation (EA) application and Draft Basic Assessment and Environmental Management Programme report (BA&EMPr).	14 Days	Department of Mineral Resource and Energy's Mineral Law Administrators (MLA) considers the PWP to determine if there's existing right for the same mineral or not. Then accept if there's no existing right for the same mineral.
EA application, if PR is accepted		
Department of Mineral Resource and Energy's Mine Environmental Management (MEM) considers the EA and acknowledges if it met the requirements of the National Environmental Management Act, 2014 Environmental Impact Assessment Regulations.	14 days	–
Public Participation Process (PPP) - making the draft BA&EMPr available for comments and addressing the concerns, issues raised by Interested and Affected Parties (I&APs) and incorporating the results of PPP into the BA&EMPr	30 days	–
Submission of BA&EMPr (the time is inclusive of the above PPP)	90 days	–
Competent Authority (CA) reviews and considers the BA&EMPr for decision Making	107 days	Submission of Black Economic Empowerment (BEE) proposal, and Mine Health and Safety Act (MHSA)
Notification of I&APs of the CA's decision	14 days	–
Opportunity to appeal the CA's decision	20 days	–
Responding to the appeal by the Environmental Assessment Practitioner (EAP) and Department of Mineral Resource and Energy's Mine Environmental Management (MEM).	20 days	–
Appeal decision	50 days	–
Court challenge	180 days	–
Oppose court challenge	10 days	–
Court verdict	180 days	–
PPP	30 days	–
–	30 days	DMRE's Mineral Law Administrators (MLA) considers Compilation of Prospecting Work Programme (PWP), Black Economic Empowerment (BEE) proposal, Mine Health and Safety Act (MHSA) and await EA decision in order to make a decision for the Prospecting Right (PR).

Note: *The timeframes in the middle column are applicable to both NEMA and MPRDA.*

In this dissertation, it is proposed that the timeframes be amended as depicted in **Table 4.2**, where administrative decision of acknowledging the application for EA by MEM will await the administrative decision of accepting/rejecting of the Prospecting Right Application by MLA. This will ensure that the timeframes of both NEMA and MPRDA are aligned in principle and in practice.

It can be concluded that the timeframes are not aligned as far as it relates to the acknowledgement and acceptance respectively in addressing the first research objective. The non-alignment relates to the requirements for both EA and PR to be acknowledged and accepted respectively, that need to be undertaken at the same time notwithstanding the fact that they are interdependent. This is attributed to the fragmented legislative framework and individualistic administrative processes by MEM and MLA as reported by Oosthuizen, (2012). With regards to all other stages of the authorisation processes the timeframes are aligned legislatively. This dissertation then proposes a way in which the non-alignment as stated above can be rectified.

4.3 Results of document analysis

The prescribed timeframes discussed in addressing the first research objectives in **Section 4.2** have been used as a standard against which the actual timeframes of Cases have been measured. The second research objective addressed here is to analyse the extent to which the prescribed timeframes are complied with in the selected Cases in the North West Province. Eight Prospecting Right applications in the North West Province were selected Cases based on the criteria presented in **Chapter 2**, to ensure consistency. The results of the analysis are presented here starting with Cases with no appeal, then those with appeals and finally the case with both appeal and court case.

4.3.1 Case with no appeal

The actual timeframes for the four Cases with no appeal are presented in **Figure 4.1** to **Figure 4.4.**

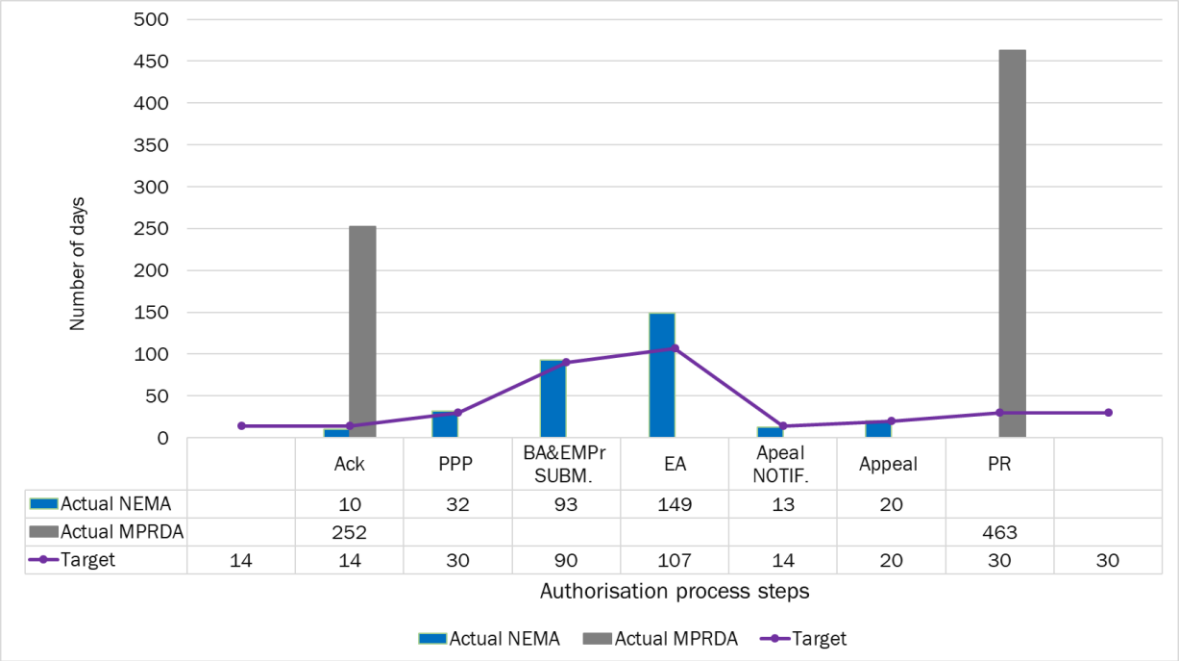


Figure 4.1: The actual timeframes for Case 1 with no appeal.

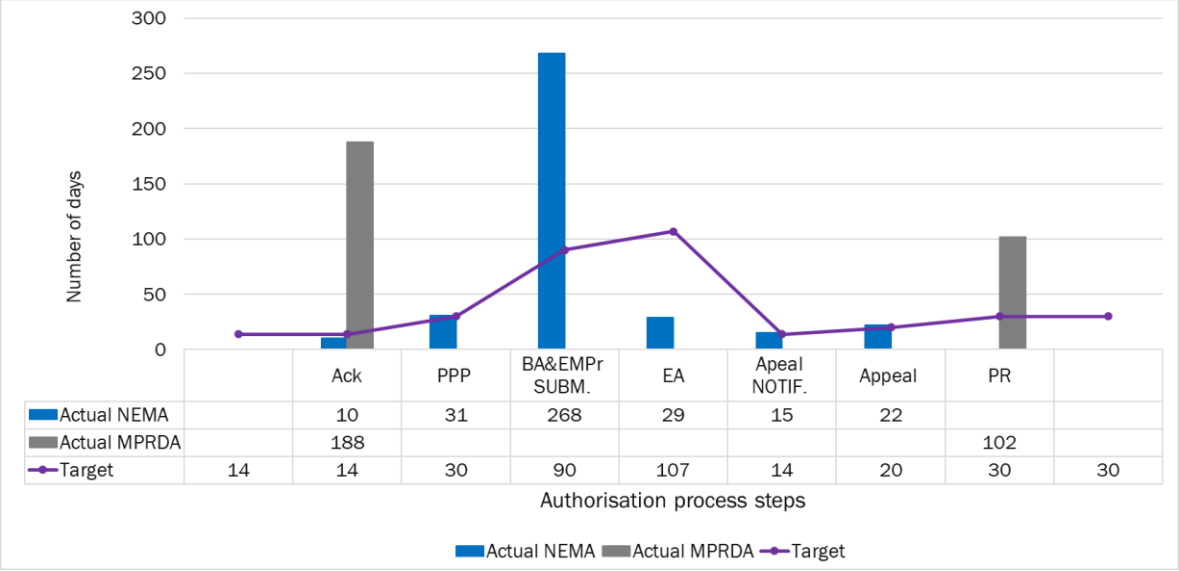


Figure 4.2: The actual timeframes for Case 2 with no appeal

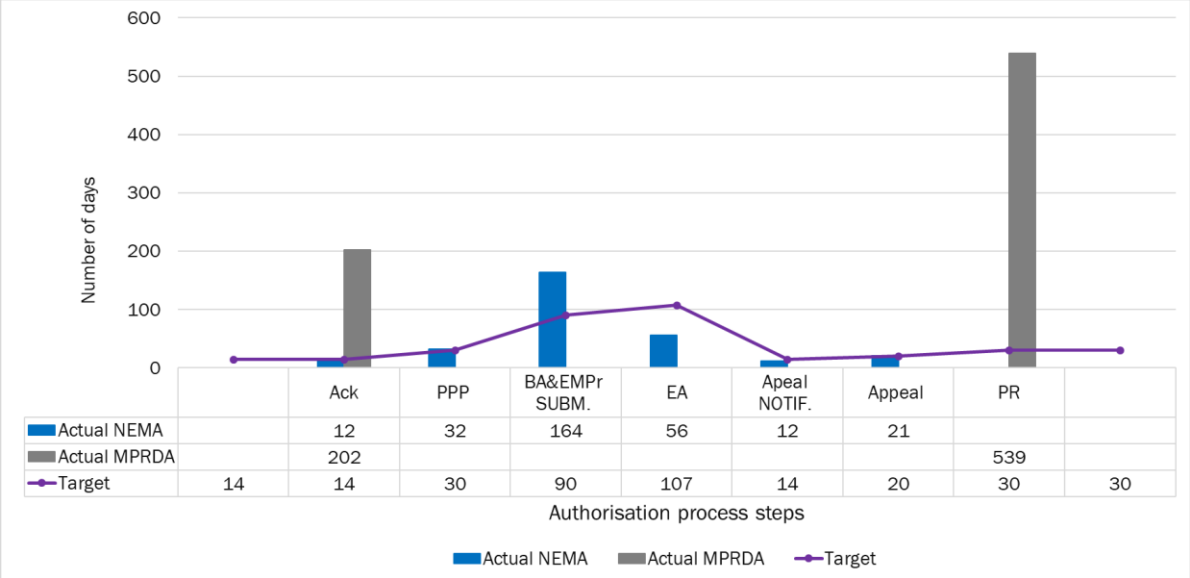


Figure 4.3: The actual timeframes for Case 3 with no appeal.

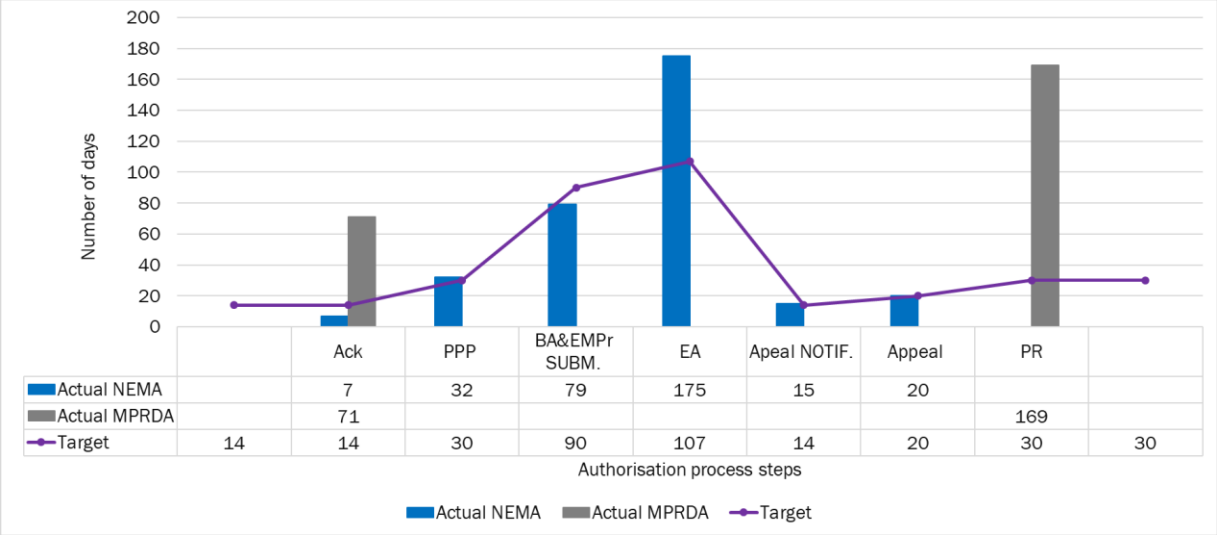


Figure 4.4: The actual timeframes for Case 4 with no appeal

Note that the 20 days appeal depicted on the graphs refers to the time allowed for Interested and affected Parties (I&APs) to appeal the decision to grant the Environmental Authorisation. None of the Cases were accepted by MLA within the prescribed timeframe of 14 days. The acceptance periods ranged from 71 to 252 days with an average of 178 days. None of the PR were granted within the prescribed timeframe of 30 days after the EA. The average delay in granting of PR is 288 days and the delay ranged from 72 to 509 days. Thus, none of the timeframes as prescribed in Section 16 and 17 of the MPRDA were met for the Cases with no appeal.

All the acknowledgements by Mine Environmental Management (MEM) in terms of 2014 EIA regulations were within the prescribed timeframes, ranging from 7 to 12 days, with an average of 10 days. Public participation for both EIA process and post EA issuing (notification of Competent Authority's decision) were undertaken within the prescribed timeframes for all Cases with no appeal.

Cases 1 (see **Figure 4.1**) and 4 (see **Figure 4.2**) were not amended after initial submission, while Cases 2 (see **Figure 4.3**) and 3 (see **Figure 4.4**) were amended. The amendment was as a result of request from MLA to remove certain portions of properties which had existing rights for the same mineral. The amendment of the BA&EMPr does not result in increased environmental impacts but reduces the size of the area applied for. The amendment resulted in delay of the second submission by 148 and 74 days for Cases 2 and 3 respectively. The EA was issued within the prescribed timeframes for only Cases 2 and 3 but delayed for Cases 1 and 4 by 42 and 68 days respectively. The notification of the grant of EA was completed within the prescribed timeframes for all the Cases with no appeal.

4.3.2. Analysis of three Case with appeal

Figure 4.5 to Figure 4.7 presents the actual timeframes for the three Cases with appeals. Public participation for all those Cases was conducted between December and January, therefore the public participation period was extended to cater for the period which must be excluded from the timeframes being 15 December to 5 January.

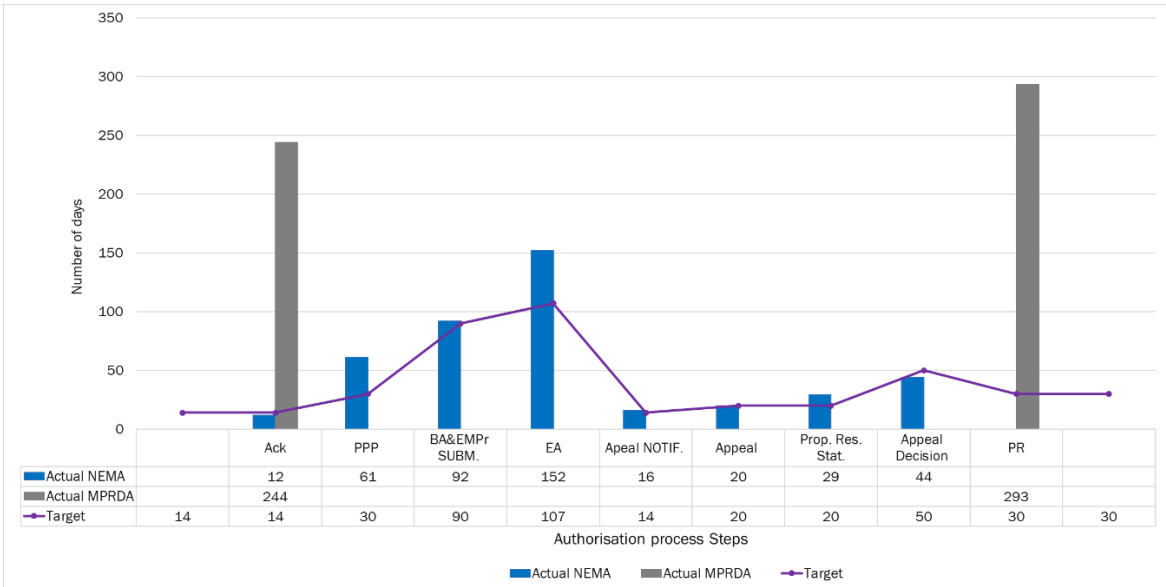


Figure 4.5: Actual timeframes for Case 5 with appeal

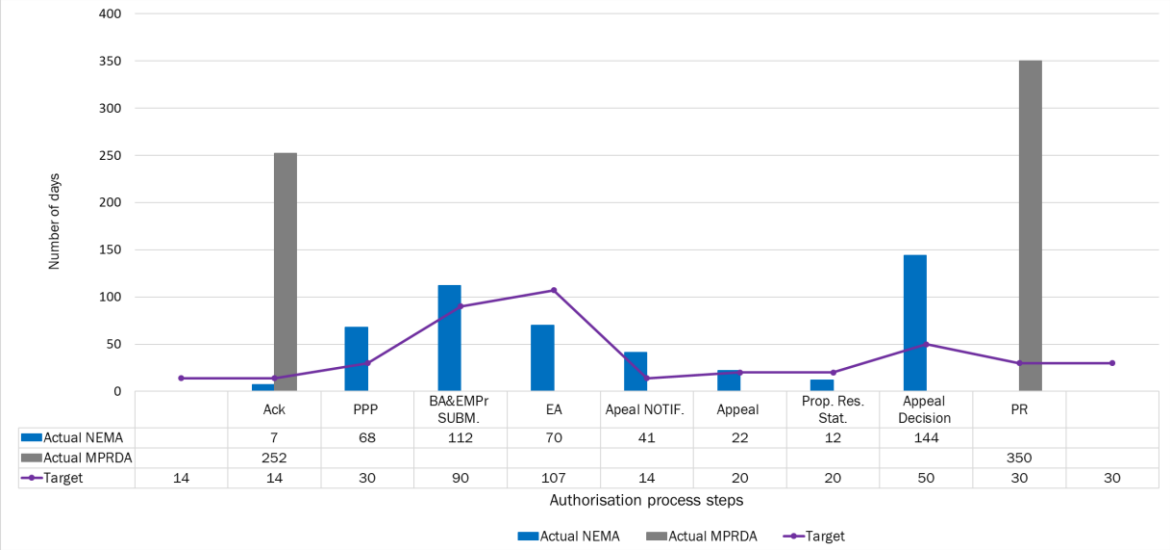


Figure 4.6: Actual timeframes for Case 6 with appeal

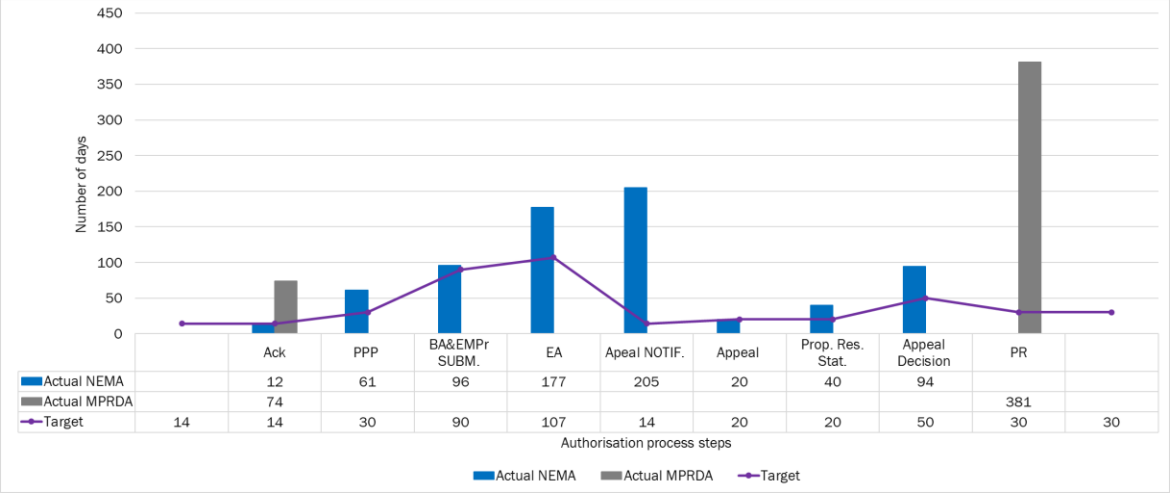


Figure 4.7: The actual timeframes for Case 7 with appeal

MLA did not comply with any of the prescribed timeframes with regards to both acceptance and granting of PR which is similar to **Subsection 4.3.1** for Cases with no appeal. The acceptance was delayed by 230, 238, and 60 days for Case 5 (see **Figure 4.5**), Case 6 (see **Figure 4.6**) and Case 7 (See **Figure 4.7**) respectively. The delay in granting the PR was 263, 320 and 351 days for Cases 5, 6 and 7 respectively. The average delay was 176 and 311 days for acceptance and PR granting respectively.

All Cases with appeal met the timeframe for acknowledgement of the EA application, with two of the applications having been acknowledged in 12 days, i.e. Cases 5 and 7, while Case 6 was acknowledged in 7 days. The notification of the granting of the EA was delayed by 27 and 191 days due to delay in receipt of the EA and the process to correct the properties which were captured incorrectly in the EA by MEM for Cases 6 and 7 respectively. All appeals were received within the prescribed 20 days. MEM only sent the responding statement within the prescribed timeframe of 20 days for Case 6 but delayed it by 9 and 20 days for Cases 5 and 7 respectively. Only Case 5 met the prescribed timeframes for the appeal decision, with the appeal decision for Case 6 and 7 being delayed by 95 and 45 days respectively.

The submissions of BA&EMPr for both Cases 5 and 7 were delayed by 2 and 6 days, respectively and were not amended and resubmitted; the delays were caused by the EAP. The EAs for those Cases were issued late by 45 and 70 days, respectively. Case 6 was amended, with the second submission being delayed by 22 days. The EA for Case 6 was

issued within the prescribed timeframes, i.e. 70 days of submission of the BA&EMPr. Case 6 was amended to remove portions that has existing prospecting and/or mining right for the same mineral, which is similar to the Case 2 (see **Figure 4.2**) and 3 (see **Figure 4.3**) in **Subsection 4.3.2** for Cases with no appeal. Case 6 was also amended twice after the EA was issued.

4.3.3. Analysis of the Case with both appeal and court case

The actual timeframes for the Case with both appeal and a court case are presented in **Figure 4.8.** Similar, to all the other Cases with no appeal and with appeal, the MLA did not meet the timeframes for both acceptance and granting of PR, with the delay being 73 and 601 days respectively.

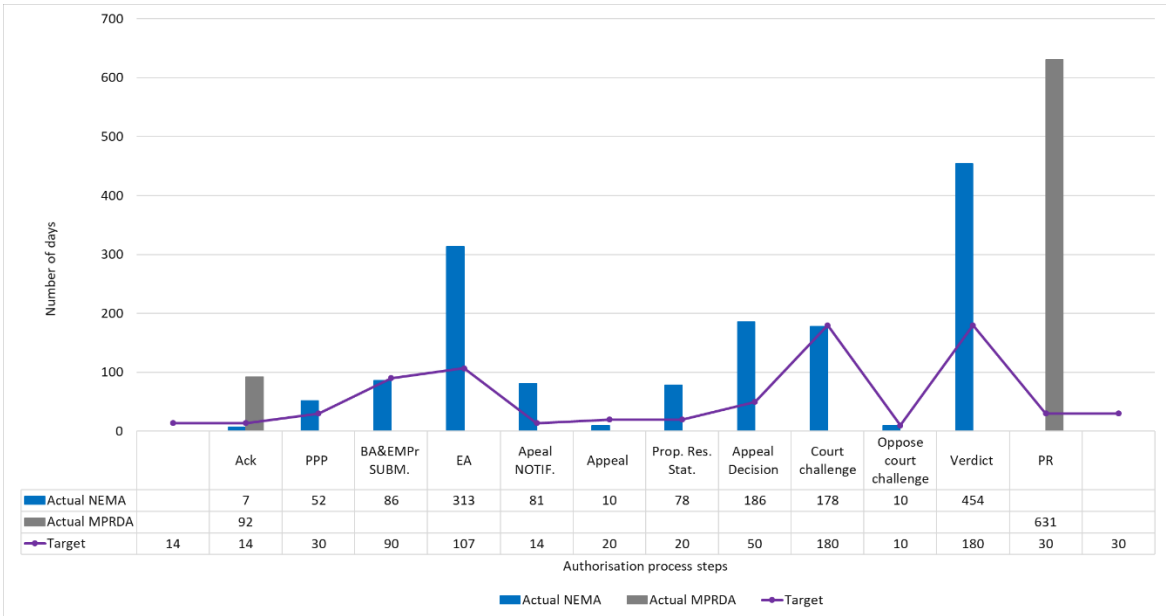


Figure 4.8: The actual timeframes for the Case 8 with appeal and court case

The EA application was acknowledged within 7 days, which is within the prescribed timeframe. Public participation for this application was undertaken between December and January, thus the time was extended to take into consideration the period between 15 December and 5 January, similar to Cases with appeal (see **Subsection 4.3.2** above). The BA&EMPr was submitted once and within the prescribed timeframes, but the EA was issued 205 days late. The post EA notification was delayed by 67 days as the EA was received late with incorrect description of properties. While the appeal was received on time, the responding statement by MEM was delayed by 58 days. The appeal decision by

the appeal authority was delayed by 128 days. The court challenge took 454 days to be settled, which resulted in 84 days delay on the court process. The 84 days delays take into consideration the 370 days of expected court case.

It can be concluded that none of the MPRDA timeframes were complied with, while most of the timeframes of NEMA were complied with, except for Granting the EA, submission of BA&EMPr, and the appeal decision. Therefore, inefficiencies were mainly observed with the MPRDA authorisation process rather than with the NEMA authorisation process.

4.4 Results of interviews

In Section 4.3, the second research objective was addressed through a comparative analysis of the actual timeframes against the prescribed timeframes. The results of the second research objective were used to draft interview questions to address the third and final research objective, which is to investigate what could be contributing to the results of the second research objective and to propose solutions, as suggested by selected key role players.

Twenty (20) participants were interviewed, of which sixteen (16) opted for face-to-face interviews whilst only four (4) participated via email. Eight (8) participants were from Mine Environmental Management (MEM), five (5) from Mineral Law Administrators (MLA) and one (1) administrator of the South African Mineral Resources Administration System (SAMRAD) of DMRE, two (2) officials from the appeal authority of the Department of Environment, Forestry and Fisheries (DEFF) and four (4) participants from the Applicants (i.e. De Beers). Notwithstanding confirmation to participate, the Environmental Assessment Practitioners (EAPs) later withdrew from participating in the research. Commenting authorities (CA) and I&APs were excluded from this research, due to the limited impact their contribution has on the overall timeframes of authorisation processes.

4.4.1 Problems that have been reported with prospecting authorisation processes

The information was analysed and expressed using a fishbone diagram in **Figure 4.9** below. The percentages presented in the fishbone diagram represent the percentage of the respondents who highlighted the factors contributing to the inefficiency of PR and EA.

All the respondents stated that the EA and PR processes were not aligned. The inefficiency in the authorisation processes were attributed to the delays in administrative action of acceptance or rejection of PR applications, in the granting of PR and in the administrative action of issuing an EA.

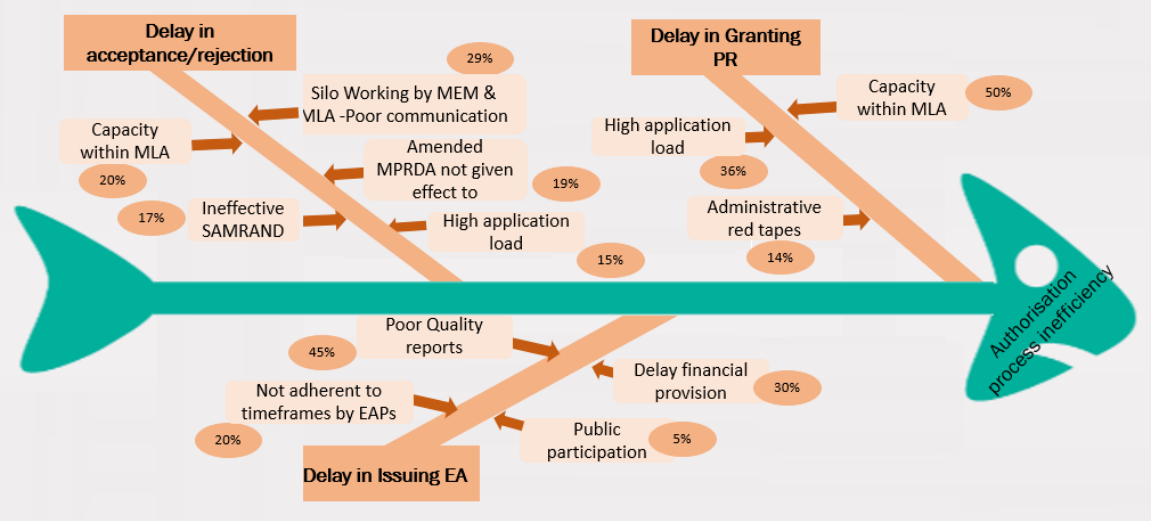


Figure 4.9: Factors contributing to PR authorisation process inefficiency

4.4.2 Problems in administrative decision of acceptance or rejection of PR applications

Participants indicated that some of the PR applications were rejected so late that the EA had already been issued for the same application. The delays in the administrative decision of acceptance or rejection of PR applications were attributed to MEM and MLA working in silos and this resulting in poor communication between the two departments, capacity within MLA, ineffective SAMRAD, amended MPRDA that has not yet been given effect to and high application load and poor communication, see **Figure 4.10.**

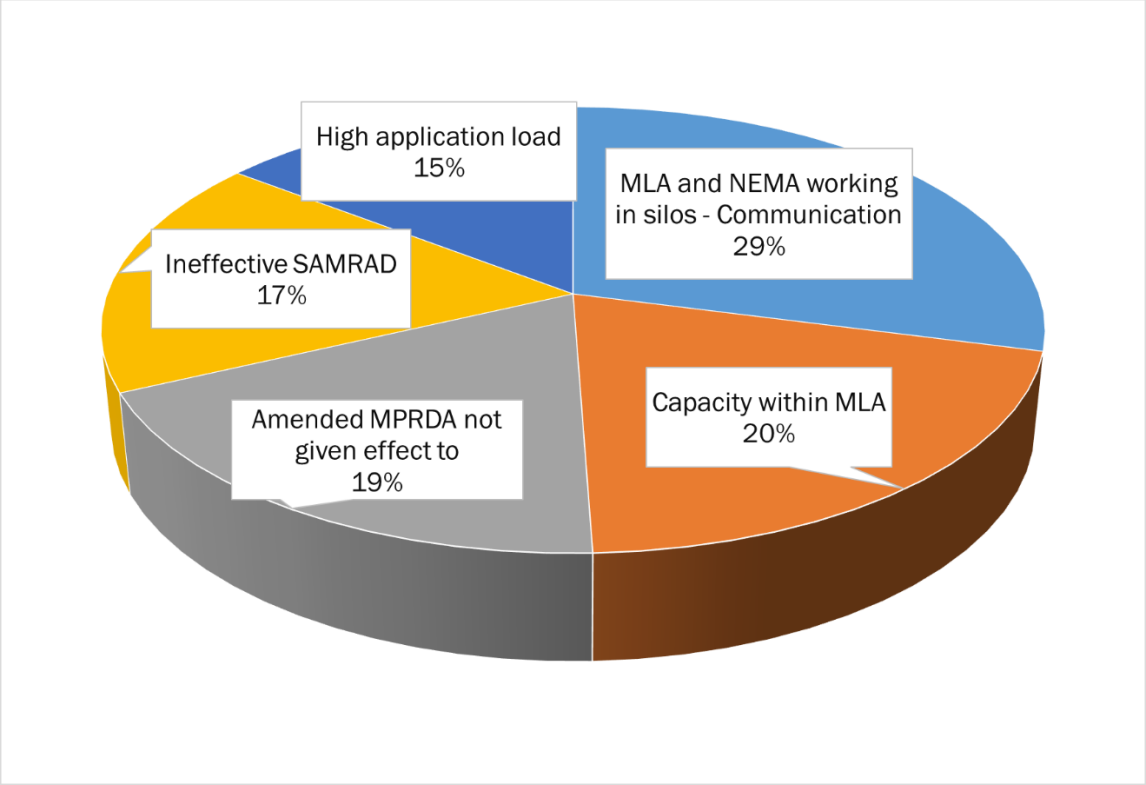


Figure 4.10: Factors contributing to the delay in acceptance or rejection of PR applications

The interview with the SAMRAD Administrator brought to light the process of acceptance/rejection of PR applications, which further highlight the issue of capacity in the MLA. The participant outlined the process undertaken before the PR application file is handed to the MLA, see **Figure 4.11** The process outlined below by the SAMRAD administrator takes more than the 14 days, which is the time prescribed to have the PR application accepted or rejected. This process is administrated by one technical personnel and two students for the entire North-West Province. The technical person is the only permanent employee that is responsible for the process below. The required action, capacity and high number of applications received by the North-West province makes it impossible to comply with the prescribed timeframe for acceptance or rejection of PR application processes.

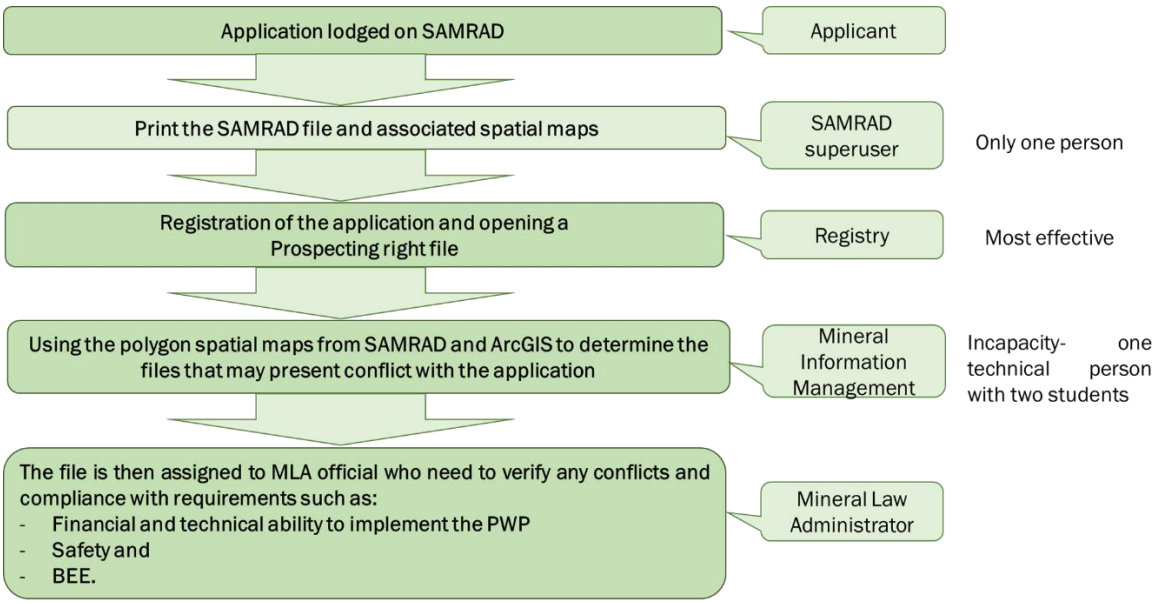
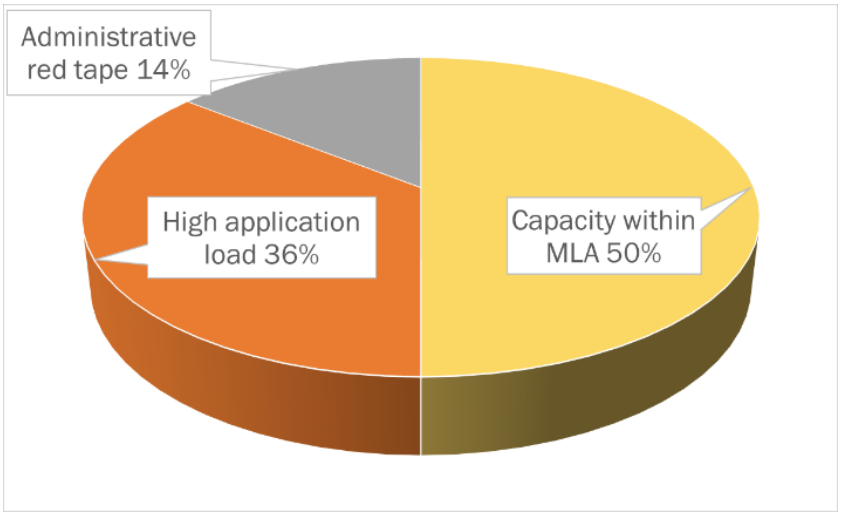


Figure 4.11: Activities undertaken prior to the PR application being assigned to MLA

4.4.3 Delay in granting PR



The delay in granting the PR were attributed to administrative red tape in DMRE's regional office, high application load and capacity in MLA, see **Figure 4.12**.

Figure 4.122: Factors contributing the delay in the administrative action granting PR

4.4.4 Delay in the administrative action of issuing of EA

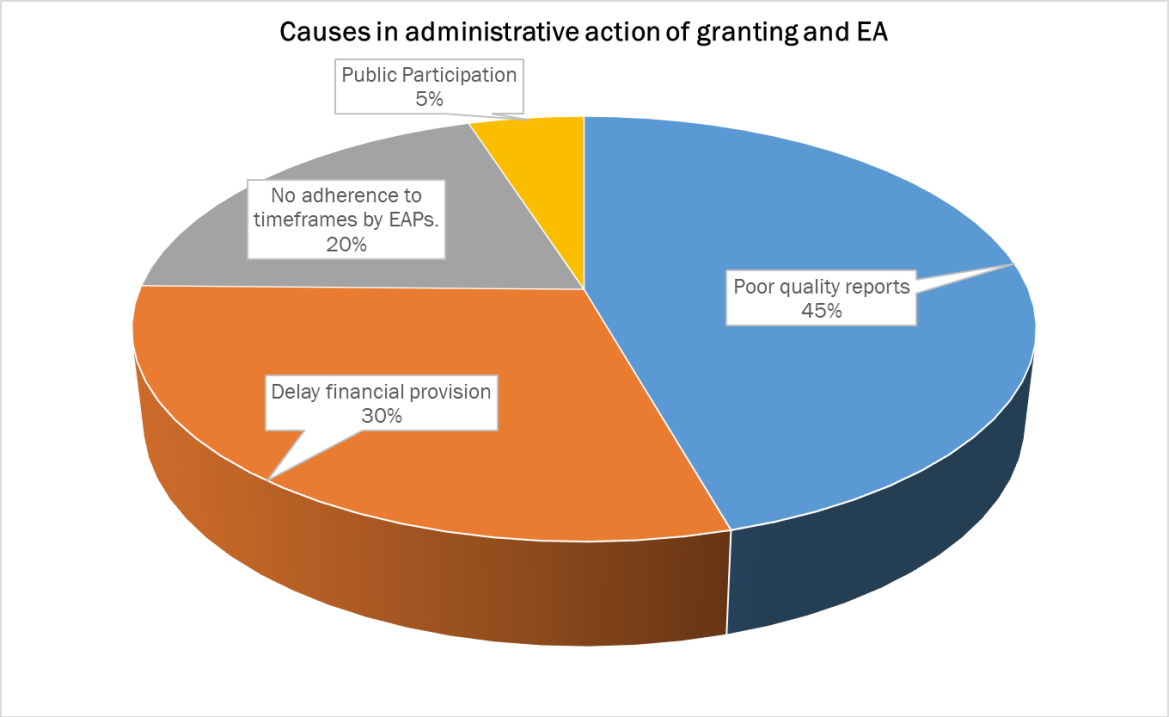


Figure 4.13: Factors contributing to delay in administrative decision of issuing of EA

The delay in decision making with regards to the EA were attributed to non-adherence to timeframes by EAPs, delay in financial provision, poor quality of EIAr and the public participation process (See **Figure 4.13**).

4.4.5 Solutions to the problems with the PR and EA authorisation processes proposed by participants.

The proposed solutions to the inefficiency of authorisation processes of prospecting activities are presented in **Figure 4.14**. The highest percentage of participants proposed improving capacity within MLA as potential solution to inefficiency problems at 26%. The second highest percentage of participants stated that the proposed solution is enabling application for larger areas in order to minimise multiple application at 24%. This was followed by both the Amendment of legislation and improved communication between MLA and MEM at 16 % each. The proposed solutions which received the least percentage of participants are improved SAMRAD, enact the amended MPRDA and internal arrangement where EA process waits for acceptance at 10%, 5% and 3% respectively.

However, this internal arrangement has not been communicated and it was unclear whether this was applicable only to the North-West Province or nationwide. It is very clear from the above that stakeholders such as MLA and MEM are rightly placed to provide solutions to the problems experienced with the authorisation processes, as alluded to by Steenkamp (2009).

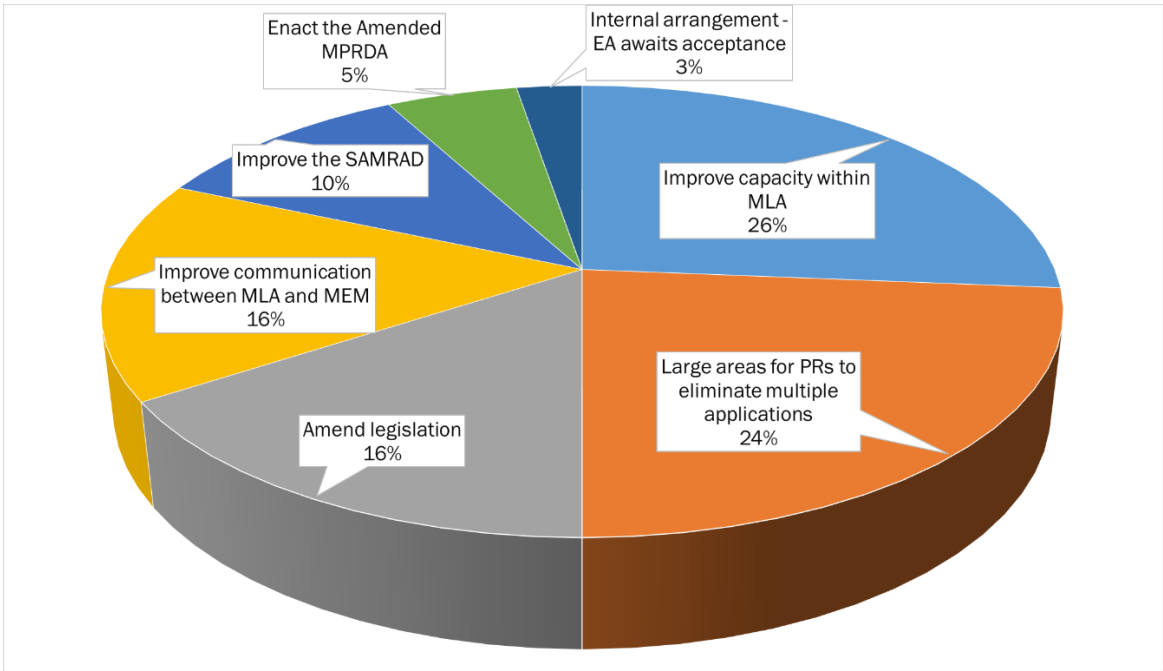


Figure 4.14: Proposed solutions to the inefficiencies of the authorisation process of the prospecting activities.

4.4.6 Problems and proposed solutions to the appeal process

The problems experienced with the appeal and the proposed solutions are presented in **Table 4.3.**

Table 4.3: The appeal process problems and proposed solutions

Problems with the appeal process	Solutions proposed by participants
Late submission of appeal.	Awareness workshops for all stakeholders with specific reference to the appeal process and the importance of timeous submission of the required information.
Prescribed appeal forms completed incorrectly.	
Late responding statement by competent authority.	
Late provision of information by both the applicant and competent authority.	
Unclear responding statements from the competent authority.	
Unregulated timeframes for responding statement.	Amend the National Appeal Regulations to include the provision for submission of answering statements.
Consideration of new information which was not part of the appeal.	Build up an alternative dispute resolution process in the application process, most of the issues can be settled there. An appeal process should be the last resort given the fact that Section 43(7) of NEMA states that an appeal suspends an EA.
Capacity.	

It is very clear from the **Table 4.3**, that lack of awareness of the appeal process is a major contributing factor to delays in the appeal processes. Capacity within the appeal authority has also been reported as an issue which is common even in the MLA section of the DMRE.

4.4.7 The consequences of inefficiencies of authorisation processes

The delay in acceptance or rejection of the PR application results in wastage of resources by the applicant. The resources wasted relates to the time and costs associated with EIA for a prospecting right that maybe rejected. This also include the costs implication associated amendment of Basic Assessment and Environmental Management Programme report (BA&EMPr) should portion of the area applied for has existing right. The costs implication to the competent authority (i.e. MEM) relates to the costs and time of reviewing the BA&EMPr and associated documents that will enable the administrative decision making. Public participation for a project that is not accepted results in the organisation's area of interest to be made public and thus losing the competitive advantage. The public participation process also raises unrealistic expectations with I&APs. The delay in issuing of EA and granting of PR results in a delay in the implementation of the Prospecting Work Programme (PWP), which has resulted in loss of

capital investment and led to retrenchment in the recent past. The delays in authorisation processes also result in opportunity costs of future mine. With the country's mining declining Leon (2010), such opportunity costs need to be avoided. The implication of delays in authorisation processes for prospecting are presented in **Figure 4.15**. Such implication has been presented as percentage of participants stating such implication.

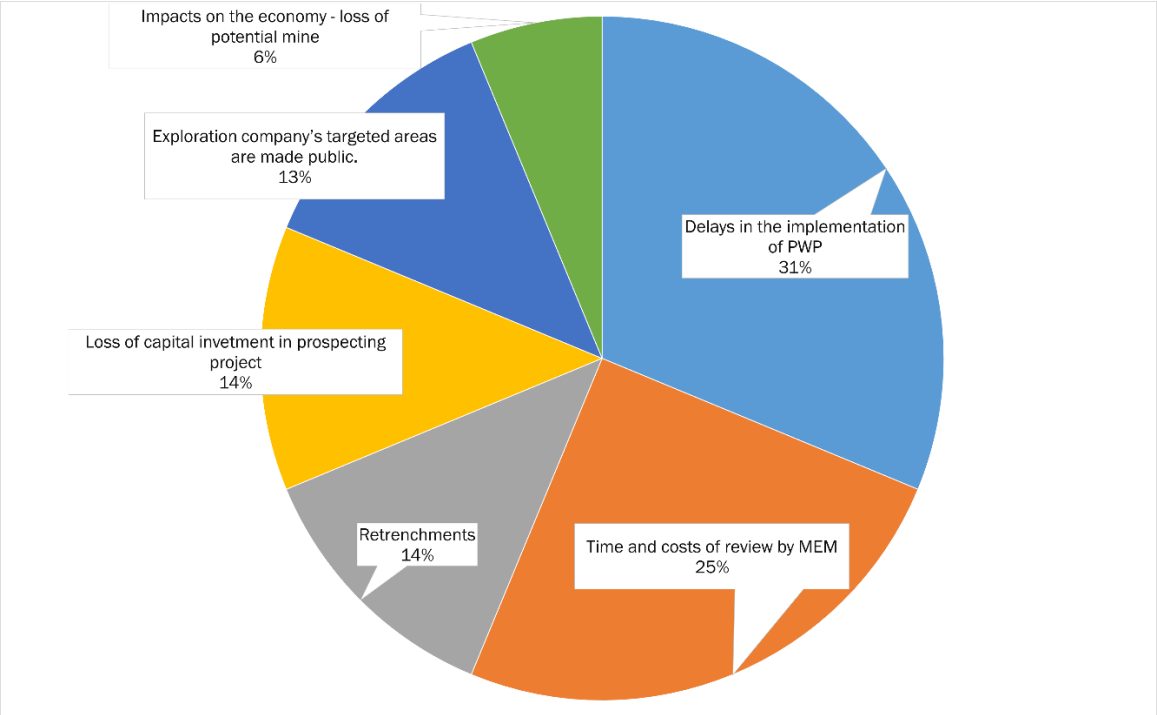


Figure 4.15: The impacts of inefficiencies in the PR and EA authorisation processes for prospecting activities.

4.5 Chapter conclusion

The EA and PR authorisation processes were found to be aligned legislatively, but not fully aligned in practice. The nonalignment relates to the administrative action of acceptance/rejection and acknowledgement by MLA and MEM respectively. The EA authorisation process was found to be more efficient than the PR authorisation process. Those results are in line with the results of Steenkamp (2009), who found that EIA was compliant with the prescribed timeframes on average. The delay in acceptance or rejection of PR applications by MLA was observed in all case studies and was also reported by interviewed stakeholders. The delays were attributed to the ineffective SAMRAD system, lack/shortage of capacity in MLA and the high number of applications received. Such delays significantly affect the EA processes in that the documents need to be amended at a late stage to remove portions with existing rights for the same mineral. It was also found

that none of the Cases' PRs were granted within the prescribed timeframes, which was attributed to capacity constraints within MLA and the administrative red tapes. The delay in granting PR suspends the implementation of PWP resulting in the infringement of the Applicant's rights to just administrative action (Kotze & van der Walt, 2003).

The acknowledgement of receipt of the EA application by MEM for all the case studies were within the prescribed timeframes. The issuing of EA was delayed by just over two months on average. Such delays were attributed to non-adherence to prescribed timeframes by EAPs, poor quality of EIA reports, and public participation. However, only applications that were amended to exclude certain portions with existing rights met the timeframes for issuing EA, while those case studies that only had one submission had their EA issued late. This suggests that the 107 days for issuing an EA is not sufficient. The inefficiencies in the appeal process were attributed to lack of awareness of the appeal process and capacity in the appeal authority to process appeals within the prescribed timeframes.

The proposed solution to address the inefficiencies by key stakeholders, were: improving capacity for both MLA and the appeal authority (Fonseca *et al*. 2018; Steenkamp, 2009), improve awareness, improve communication between MEM and MLA, improve the SAMRAD system and legislative amendments. The regional office's internal arrangement of waiting for the PR decision to accept or reject the PR application before acknowledging the EA application is contrary to the timeframes as prescribed by the 2014 EIA regulations. This is the problem alluded to by Kidd *et al* (2018) with regards to the inflexibility of the current EA system.

Prospecting activities can also be reviewed as part of scoping (Middle & Middle, 2010; Barnes *et al*., 2010; Duinker & Greig, 2011; Horvath & Barnes, 2015; Borioni *et al*., 2017) to combine the non-invasive activities (i.e. Ground geophysics) with Reconnaissance Permission applications. This is particularly important taking into consideration the findings of Montgomery (2015) and Retief and Chabalala (2009) that small scale projects are overburdened by EIA.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The aim of this research was to investigate the extent to which Environmental Authorisation (EA) and Prospecting Right (PR) are efficiently implemented utilising eight Cases of prospecting application for kimberlite in the North-West Province. The research aim was addressed using a mixed research approach.

The first research objective was to determine the degree to which the timeframes in both Mineral and Petroleum Resource Development Act (MPRDA) and National Environmental Management Act (NEMA) are aligned. It is addressed using a qualitative approach by reviewing legislative framework with specific reference to timeframes.

A sample of eight Cases was evaluated through a quantitative approach, specifically document analysis, to address the second research objective which is to analyses the extent to which the prescribed timeframes are complied with.

A qualitative approach was utilized to address the third research objective by interviewing twenty participants, who are key role players in the authorisation processes, the third research objective is to investigate what could be contributing to the results of the second research objective and to propose solutions, as suggested by selected role players .

This chapter therefore addresses the research aim and objectives in order to reach a conclusion and provide recommendations for future research.

5.2 Summary of results

The first research objective is addressed in Section 4.2 of this dissertation, where it was demonstrated that the prescribed timeframes in both MPRDA and NEMA are mostly aligned, except for the administrative action by both Mineral Law Administrators (MLA) and Mine Environmental Management (MEM) for acceptance/rejection and acknowledgements respectively, are not aligned practice. The unalignment of the administrative action of acceptance/rejection by MLA and acknowledgement by MEM, has mainly been attributed to the fragmented legislative framework and silo administrative processes by both MLA and MEM, which is consistent with the findings of Oosthuizen, (2012).

In addressing the second research objective in **Chapter 4**, more specifically **Section 4.3**, it was found that the EA process was more efficient than the PR authorisation process. With regards to the EA, inefficiencies were observed when it comes to the administrative decision of issuing the EA and that of the appeal decision. Neither the acceptance/nor the granting of the PR were within the prescribed timeframes for all case studies. The inefficiencies were found to infringe on the just administrative right of Applicants (Kotze & van der Walt, 2003), in that the implementation of the Prospecting Work Programme (PWP) is delayed and in cases where the PR is rejected late, the resources used for the EA process was wasted.

In line with the findings of Steenkamp (2009) the key stakeholders are appropriate to identify problems and proposed solutions to inefficiencies in the authorisation process which were found in addressing the third research question (Section 4.4). The interviews attributed delays in the administrative action of accepting/rejection PR applications to capacity within MLA, silo working relation between MEM and MLA high application load and ineffectiveness of SAMRAD. Delays in granting the PR were attributed to lack of capacity within the MLA and administrative red tapes within the DMRE regional office.

Poor quality of reports, delay in financial provision, non-adherence to timeframes by EAPs and public participation, were factors that were identified by key stakeholders to contribute to delaying the administrative action of issuing of EA. Delays in the appeal process were attributed to lack of awareness of the administrative process, capacity issues within the appeal authority and some unregulated timeframes. Contributing factors to the delay in the court processes could not be established in this study, because none of the individuals involved with the court process could be interviewed.

The interviewed stakeholders provided the proposed solutions, which include legislative amendments, improving capacity, improved awareness and communication and an improved SAMRAD system. The internal arrangement alluded to by some of the interviewed stakeholders with regards to administrative action of acknowledgement by MEM being preceded by the administrative action of accepting and rejecting the application is constrained by the fact that it is in contravention of the current legislative framework.

5.3 Conclusion and recommendations

It can therefore be concluded that EA and PR authorisation processes are not implemented as efficiently as could be in the North-West Province. This is notwithstanding the fact that MPRDA and NEMA timeframes are aligned in principle as a result of the One Environmental Management System (OEMS). The fact that they are not aligned in practice present significant problems for the efficient implementation of the PR and EA authorisation processes for prospecting right activities. It is recommended that the suitability of the timeframes for administrative action of accepting/rejecting the PR application and of issuing the EA be reviewed, taking into consideration resource availability (i.e. capacity) and the actual process undertaken.

This dissertation also recommends that the ground geophysics activities can be scoped into the Reconnaissance Permission process, as those are non-invasive and can provide information that will enable the applicant to exit the activities or continue applying for the prospecting right activities only for areas with high potential of yielding favourable results.

5.4 Recommendations and areas of future research

The following areas of future research are recommended in order to take the efficiency debate forward:

- Similar research be expanded to other provinces in order to determine if there are variation in different judications.
- Similar research on PR for other minerals
- Investigation efficiencies of other authorisation processes such as mining right authorisation processes.
- Other key stakeholders such as EAPs and commenting authorities can be included in future studies.

Despite the focus on eight Cases in the North West Province for De Beers applications this research shed valuable light into the understanding of efficiency of prospecting authorisation processes in South Africa.

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ANNEXURE A: PARTICIPANT INFORMATION LEAFLET

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

PARTICIPANT INFORMATION LEAFLET

TITLE OF THE RESEARCH PROJECT: THE EFFICIENCY OF ENVIRONMENTAL AUTHORISATION APPLICATIONS FOR KIMBERLITE PROSPECTING IN THE NORTH-WEST PROVINCE

RESEARCHER: Twarisani Theophillus Rikhotso Student No: 23364947

ADDRESS: 588 Marula Street, Alveda Park, Johannesburg South

CONTACT NUMBER: 071 959 26032

EMAIL: theot.rikhotso@gmail.com

You are invited to take part in a research project that forms part of my Master's degree in Environmental Management. The aim of this research project is: **To investigate the extent to which EA and PR applications are effectively implemented in the North-West Province.**

Your participation is voluntary, and you are free to decline to participate in this research project. You may also withdraw your participation at any stage. You can use the research specific email address to send the questioner being researchttr2019@gmail.com and password being Password@2019, if you wish to send anonymously. **When using the email above, you are requested to delete the sent email immediately after, to prevent access by other participants.** It is your prerogative to sign the declaration in **Appendix I**. The results of this questionnaire will only be shared with people working on this research anonymously. The information obtained from this questionnaire will solely be used for academic purposes.

Please do feel free to contact my supervisor (Prof. Luke Sandham) and/or myself should you require clarification or for any question.

All responses maybe emailed to myself at theot.rikhotso@gmail.com, alternatively you can elect to have a one on one interview with myself telephonically or in person.

Thank you for considering taking part in this research project and for you're the time spent. Your responses are of great value to this research project and I highly appreciate the effort in this regards. The results of this research project can be made available to you on request.

Best regards
Twarisani Theophillus Rikhotso
Theot.rikhotso@gmail.com

Luke Sandham
Luke.Sandham@nwu.ac.za

HREC General WICF Version 3, March 2015

ANNEXURE B: CONSENT FORM

Declaration by participant

By signing below, I ..... agree to take part in a research study titled: **The efficiency of Environmental Authorisation applications for Kimberlite prospecting in the North-West Province.**

I declare that:

- I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions to both the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) ..... on (*date*) ..... 20....

.....
Signature of participant

.....
Signature of witness

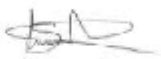
Declaration by researcher

I Twarisani Theophillus Rikhotso student No: 23364947 declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use a interpreter.

Signed at (*place*) ....Southdale, Johannesburg..... on (*date*) 6 August 2019

.....
Signature of researcher



.....
Signature of witness

ANNEXURE C: INTERVIEW QUESTIONNAIRE

Questioners

1.1 What are the problems experienced in authorisation process efficiency in the North-West Province?

_____
_____
_____
_____.

1.2 How aligned are the Environmental Authorisation and Prospecting Right authorisation processes and what can be done to improve such alignment if any?

_____
_____
_____
_____.

1.3 can the authorisation processes be improved in the North-West Province?

_____
_____
_____
_____.

1.4 How does authorisation process inefficiencies in one process affect the other?

_____
_____
_____
_____.

1.5 What are the problems experienced with the appeal process and how can it be improved?

_____
_____
_____
_____.

1.6 What are the impacts of delays?

_____
_____
_____
_____.