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MISMATCH BETWEEN MINE PROSECUTION RATES IN TERMS OF THE MINE HEALTH AND SAFETY ACT AND RECOMMENDED PROSECUTION OUTCOMES OF MINE FATALITY INQUIRIES

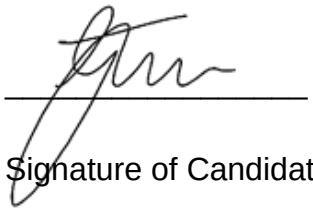
Glentine Tshegofatso Kekana

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Engineering.

Johannesburg, 2025

DECLARATION

I have familiarised myself with the University of the Witwatersrand Student Academic Misconduct Policy (SAMP). I hereby declare that the work I am submitting for assessment is my original work. I affirm that I have not plagiarised, misrepresented, or colluded with any other person or source. I have properly acknowledged, cited, and referenced all the sources that I have used in my work. I also declare that I have used artificial intelligence (AI) tools only as a means of guidance. The ideas and arguments presented in my work are my original thoughts and interpretations. I acknowledge that any academic misconduct, such as plagiarism or collusion will result in serious consequences. These consequences may include a reduced grade, a fail mark, or disciplinary action according to the SAMP. The School of Mining Engineering has my consent to investigate any potential academic misconduct in my work. This investigation may include the use of similarity and AI detection software to check the originality of my work. I undertake to abide by the decision of any such investigation.



Signature of Candidate

22 April 2025

Date

EXECUTIVE SUMMARY

Occupational Health and Safety (OHS) in South African mines has vastly improved from the early 1900 towards democracy and post-democracy. In the decade between 1984 and 1994, a total of 7400 employees lost their lives in mine accidents. Whilst in the latter decade between 2012 and 2022, 844 fatalities were reported, showing a reduction of 88.6%. The landmark accident of the Vaal Reefs Mine Disaster in 1995, where 104 employees lost their lives in the line of duty became a catalyst to investigate the status quo of OHS at mines. There was a commission of inquiry appointed by the former state president Nelson Mandela and the most crucial recommendation that came out of that inquiry was the promulgation of the Mine Health and Safety Act, Act No. 29 of 1996 (MHSA). The overarching aim of the MHSA is to protect the health and safety of employees and other persons at the mines. This is supported by several objectives, one of which seeks to provide for effective monitoring systems and inspections, investigations and inquiries to improve health and safety.

The MHSA makes provision for mine fatal inquiries to be conducted and if gross negligent behaviour is found, sections 91(1) and 86(1) of the MHSA make provision to recommend prosecution. Despite MHSA provisions, mine prosecutions have been low. The study aim was to establish reasons for the low prosecution rate and understand aspects that need to be considered to achieve successful mine prosecutions.

The study was conducted using a combination of different research methods for data collection and analysis. Qualitative methods comprised of surveys, interviews, and document review. Key informant interviews were conducted with several key stakeholders including government, industry, trade unions and others. The quantitative data involved the collection of health and safety statistics and prosecution data. This data was used to establish OHS performance and identify trends in mine prosecutions.

The findings on OHS performance revealed that there were repeat mine fatal accidents, and the leading causes were falls of ground, transport and machinery, fires and general types of accidents. The key findings on prosecutions indicated that between the period 2016 to 2020, there were no successful mine prosecutions meted out. This has been attributed to several factors including shortcomings of the existing legal framework and procedural practices, lack of resources and capacity from the mine’s inspectorate and national prosecuting authority, the quality of inquiry reports

and limitations thereof, poor collaboration between state institutions as well as political interference.

The areas of improvement raised in the study include the need for legislation to become more detailed with prescribed minimum standards. There is also a need for training to build the capacity of the inspectorate and national prosecuting authority. The return of mining courts or a tribunal was also recommended to improve prosecution outcomes and to ensure that a better relationship is established between state and other key institutions.

DEDICATION

To all miners who lost their lives in the line duty. May your souls rest in peace as we endeavour to prevent similar accidents.

ACKNOWLEDGEMENTS

My gratitude goes to My Lord and Saviour Jesus Christ who strengthened me to finish the course started. As Philippians 1:6 says, "*being confident of this, that he who began a good work in you will carry it on to completion until the day of Christ Jesus*."

Appreciation to my supervisor, Dr Pontsho Twala, who provided me with a chance to further my studies and career. At times I believe you were God's hand extended toward me in my academic pursuits to date, as you believed in my capabilities despite the difficult periods that passed through my life. In addition, I appreciate Witwatersrand School of Mining staff and HOD for the professional development provided through their world-class resources.

I also want to extend my sincere thanks to the DMRE-MHSI, for allowing me to conduct my study. A special appreciation to Mr T Ngwenya who inspired me to conduct this research.

My late Dad-Abram Kekana and Mom-Mathoto Kekana, gratitude and appreciation for everything. My lovely wife, Kefilwe Kekana, Mother of my kids, thank you for supporting me through my research.

LIST OF ACRONYMS AND ABBREVIATIONS

Abbreviation/Acronym	Description
AMCU	Association of Mineworkers and Construction Members
CSIR	Council for Scientific and Industrial Research
DMRE	Department of Mineral Resources and Energy
EMP	Environmental Management Plan
FOG	Falls of Ground
MHSA	Mine Health and Safety Act, Act No. 29 of 1996
MHSI	Mine Health and Safety Inspectorate
MPRDA	Mineral and Petroleum Resources Development, Act No. 28 of 2004
NEMA	National Environmental Management Act No. 107 of 1998
NMP	National Mineral Policy
NPA	National Prosecuting Authority
NUM	National Union of Mineworkers
NUMSA	National Union of Metalworkers South Africa
OHS	Occupational Health and Safety
SAPS	South African Police Service
T&M	Transport and Machinery

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CHAPTER ONE: INTRODUCTION

1.1 Purpose of the Study

The purpose of this research is to understand the mismatch between prosecution rates in terms of the Mine Health and Safety Act, Act 29 of 1996 (MHSA) and recommended prosecution outcomes of mine fatal inquiries. The inquiries are conducted by the Department of Mineral Resources and Energy (DMRE) in terms of MHSA.

1.2 Background and Context

Occupational Health and Safety (OHS) has been a concern in the South African mining industry since the apartheid regime and moving into the early stages of democracy. In 1986, eight years prior to democracy, there was a fire at the Kinross gold mine in Secunda where 177 lives were claimed by a mine disaster (Mail & Guardian, 1995). Less than a year into democracy, on the 10th May 1995, there was a mine disaster that claimed the lives of 104 mineworkers at the Vaal Reefs gold mine in Klerksdorp (Mine Health and Safety Council, 2020)

Following the Vaal Reefs disaster, several stakeholders including the National Union of Mineworkers (NUM), Mine Workers Union and the state highlighted the need for improved health and safety in mining operations and as such called for a review of the mining legislation (Mail & Guardian, 1995). This had an influence on the Leon Commission of Inquiry into mine health and safety, which was established (Mine Health and Safety Council, 2020).

The outcome of the Leon Commission of Inquiry resulted in the promulgation of the Mine Health and Safety Act, Act No. 29 of 1996, as existing legislation was eminently insufficient. The previous mining legislation, the Minerals Act No. 50 of 1991, focused mainly on safety aspects without addressing the occupational health hazards susceptible to mineworkers.

The MHSA Bill was approved by parliament and passed into law in 1996, in an endeavour to address the poor occupational health and safety performance at the mines. In addition to putting in place measures to reduce injuries and fatalities, the MHSA empowered the Mine Health and Safety Inspectorate (MHSI), as the regulator, enforcement powers in the form of suspension of certificates, imposing of fines and

compliance notices in terms of MHSA sections 54 and 55 instructions (IMC and The Resolve Group, 2003; Mail & Guardian, 1995).

The regulator was empowered to hold employers, defined as mine owners by the mining legislation, accountable for poor health and safety at the mines and even recommend prosecution for negligent behaviour, which has resulted in a fatal accident. For example, section 91(1) of the MHSA makes provision for any person contravening the Act to be prosecuted. Any negligent act or omission by any person, in consequence of causing injury or occupational disease to another, commits an offence and can be held criminally liable. This provision is found under section 86(1) of the MHSA (Government Gazette, 1996). According to Johnson, et al (2019), enforcing these excerpts of the mining legislation has been a challenge, particularly prosecutions.

Since the introduction of the MHSA, there has been a downward trend in the total number of fatalities reported by the mines. In particular, there has been a significant improvement in safety with the number of fatalities decreasing from 615 to 49 in 1993 and 2022, respectively (Department of Mineral Resources and Energy, 2023). While this is the case, zero harm is yet to be attained. Overall OHS performance in the mining industry therefore remains a challenge because of recurring fatal accidents.

1.3 Problem Statement

Even though the number of fatalities has decreased, zero harm is yet to be achieved. Sections 65, 66 and 72 of the MHSA require that mine fatality inquiries be conducted to determine the root causes of accidents and provide remedial actions to prevent repeat accidents. If gross negligent behaviour is found, sections 91(1) and 86(1) of the MHSA make provision to recommend prosecution.

Currently, there exists a misalignment between recommended prosecution and prosecution rates in practice. Many of the recommended prosecutions from mine inquiries have not been translated into successful prosecutions in court. The National Union of Metalworkers (NUMSA) highlighted the fact that the MHSI needed to consider more strict penalties and prosecution for mine owners because of the low prosecutions seen in the mining industry (Johnson, et al., 2019). The DMRE has also raised concerns about the low number of prosecutions (Department of Mineral Resources and Energy, 2020).

According to Nelwamondo and Mpanza (2016), between 2005 to 2016 in over 50 recommended prosecution cases in Gauteng province, there were zero mine prosecutions. As a result, the mining industry has repeat offenders and fatal accidents. To some extent, this can be attributed to the MHSA's inability to hold grossly negligent parties accountable, as evidenced by the lack of prosecutions in court. The key definitions used in the study are as follows:

Repeat accident type of fatality - In the context of this study, a repeat accident, is defined as an accident occurring under the same agency/category (i.e. falls of ground or machinery type) annually. For example, falls of ground accidents occurring every year are considered a repeat type of accident.

Repeat offender - In the context of this study, a repeat offender is a mine or individual involved in the same agency type of fatality where similar observations were made from prior accidents. For example, a recurring fall of ground type of accident occurring at the same mine under the same manager with similar observations from the previous accident is considered a repeat offender.

1.4 Aims and Objectives

This research aims to understand the mismatch between mine prosecution rates and recommended prosecution outcomes and provide solutions to improve the prosecution rate. The research objectives are to:

- Establish OHS performance and areas of concern for the period 2016 to 2020.
- Analyse inquiries conducted in terms of section 65 of the MHSA and recommended prosecutions for 2016 to 2020. The difference in the study period is explained in the methodology chapter.
- Assess the position of industry stakeholders in terms of mine prosecution as a tool to improve OHS performance.
- Understand constraints affecting mine prosecution; and
- Make recommendations for areas of improvement in mine prosecutions.

1.5 Research Questions

The overarching questions supporting the research are as follows:

- What is the status of OHS performance and challenges for the period between 2016 to 2020?
- What is the mine prosecution rate for the period 2016 to 2020?
- What is the industry position on mine prosecution as a tool to contribute towards achieving zero harm?
- Which constraints affect mine prosecutions?
- What can be done to improve mine prosecutions to ensure that it contributes towards zero harm?

1.6 Research Motivation

In 2014, the state, mining companies and organised labour in a Tripartite safety milestone conference held in Gauteng with the theme of Safety, agreed on industry milestones to have a 20% reduction year-on-year on safety accidents, ultimately achieving zero harm by December 2020 (Mine Health and Safety Council, 2020). In the past two decades between 1995-2016, there has been a steady decline in fatalities. However, in 2017, there was a slight regression with the number of fatalities reported at 90 compared to 73 in 2016. This was followed by an improvement with the mining industry reporting the lowest fatalities in 2019 at 51 (Mine Health and Safety Council, 2020; Department of Mineral Resources, 2019). While this is the case, the December 2020 zero-harm milestone agreed upon at the Tripartite forum was not achieved as the mining industry closed the year 2020 with 60 fatalities, which is an increase of 18% compared to 2019 (Mine Health and Safety Inspectorate, 2020).

While considerable inroads have been made to improve OHS performance, it is recognised that the journey to zero harm requires that a more holistic approach to health and safety be adopted. This could be achieved through the implementation of a combination of enforcement measures available in the MHSA, such as the prosecution of employers, workers and anyone that has flaunted or not complied to the legal requirements of the MHSA.

The findings of this research will be useful to the Department of Mineral Resources and Energy (DMRE), particularly the Mine Health and Safety Inspectorate (MHSI) and the National Prosecuting Authority (NPA) as it will provide insights into the factors that

affect mine prosecutions. In addition, the report findings will have a positive outcome on the industry in terms of presenting a tool that can be adopted to improve the status quo on health and safety matters.

1.7 Structure of the Report

The report has five chapters. Chapter One provides the introduction including the purpose of the study, background, problem statement, research questions and objectives.

Chapter Two discusses the literature review which covers the status of OHS in the mining industry both globally and in South Africa. Furthermore, the MHSA and its requirements are discussed together with enforcement guidelines. The Chapter concludes with a case study of the Gretley mine disaster where prosecution was meted out to draw lessons that could be considered for the South African case.

Chapter Three describes the research methodology covering data collection and analysis. Chapter Four provides the results from data collected and these are presented in line with the objectives of the study. Chapter Five provides conclusions and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

South Africa is a resource-rich country due to a vast range of minerals that have been explored and mined over the years. To understand the landscape of South African mining landscape, there are key aspects that need to be discussed that form the basis of understanding health and safety and these are the country's mineral deposits and mining methods. In this Chapter, literature on OHS is presented and the key aspects covered include MHSA's requirements, enforcement measures and monitoring tools for compliance with legislation. The chapter also presents a case study of the Gretley mine disaster to understand how persecution was successfully meted out and the learnings thereof.

2.2. Landscape of South African Mines

South Africa can be classified as a resource-rich country because of its large mineral endowment. Unlike, other countries which may host one major or few minerals, South Africa's mineral wealth according to CSIR (2019) can be attributed to six major geological formations which host different minerals, namely:

1. Witwatersrand Basin bearing - gold, silver, uranium, pyrite and osmiridium;
2. Bushveld Complex bearing - Platinum group metals (PGM's), copper, nickel, cobalt, fluorspar, andalusite, chromium, vanadium and other minerals;
3. Transvaal Supergroup bearing – Manganese and iron ore;
4. Phalaborwa Igneous Complex bearing - Copper, phosphate, titanium, vermiculite, feldspar and zircon;
5. Kimberlite Pipe bearing – diamonds; and
6. Heavy Mineral sand bearing – Ilmenite, rutile, and zircon.

Over and above the stated minerals, coal is also a central mineral in the country found in the Karoo basin with coal deposits found in the Mpumalanga, Limpopo and Free State provinces (CSIR, 2019). Figure 2.1 depicts the geographical distribution of minerals across the country.

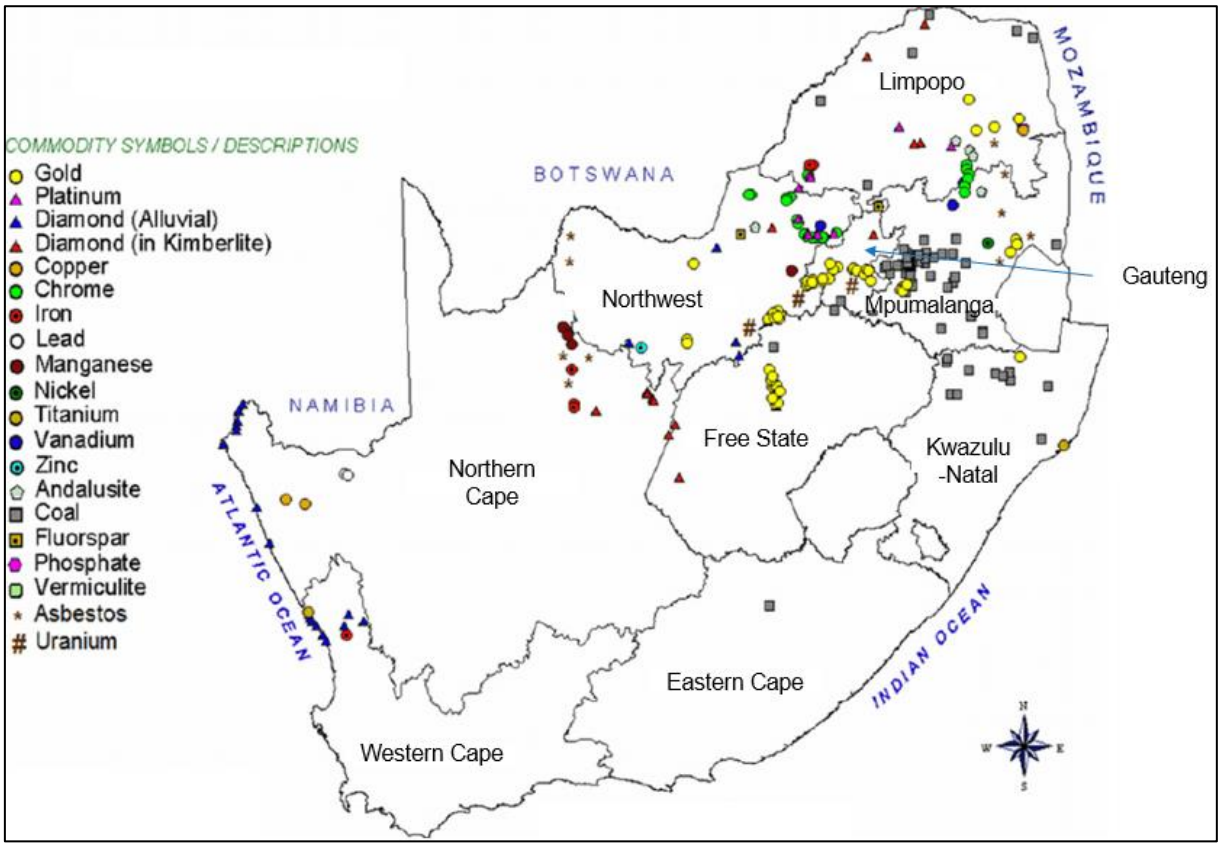


Figure 2.1: South Africa Mining Map

(Source: Council for Geoscience, 2023)

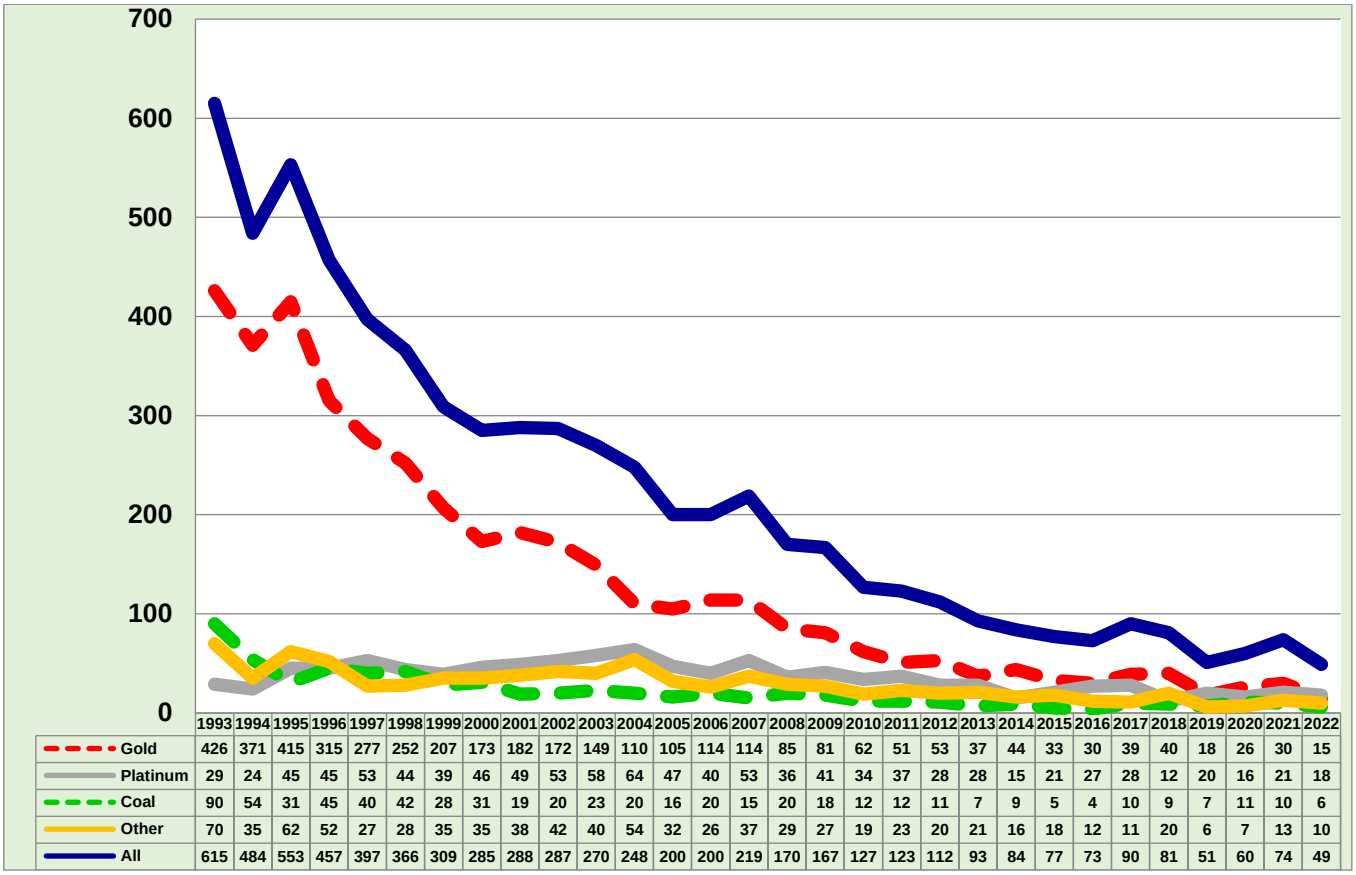
As seen in the figure, the major mining provinces are Gauteng, North West, Northern Cape, Limpopo and Mpumalanga. Some of the minerals are found along the seacoast with alluvial operations and some are found close to the surface, for example, diamond deposits found in kimberlite pipes and copper deposits, which are exploited using surface mining methods. Minerals such as gold and platinum are found between 500 meters to 5 kilometres, and they are mined using underground mining methods ranging from medium to ultra-deep operations (Council for Geoscience, 2023).

Surface mines are conducted through the use of heavy machinery utilising open cast and open pit mining methods. Medium to ultra-deep mines utilise mining methods ranging from room and pillar mining, breast/shrinkage/long-wall stoping, sub-level/block caving and cut and fill mining depending on the characteristics of the orebody (CSIR, 2019). For example, one of the deepest mines, the Mponeng Mine is found in Gauteng province in South Africa, and it is currently operating at an estimated depth reaching 5 kilometres below the surface. Mponeng Mine utilises a combination of both conventional and mechanised stoping mining methods (Diering, 2000).

The selection of mining the method is based on several parameters including technical geological and mining considerations, health and safety, environmental impacts, economic viability and other factors. Although surface mines have low risk to the health and safety of employees, they leave a significant environmental footprint which must be rehabilitated. On the other hand, underground operations do not have a large environmental footprint, but they pose higher risks to the health and safety of employees. The risks associated with underground mines include fall of ground both seismic and gravitation, fires and explosions, blasting, noxious gasses inhalation, transportation and machinery incidents, electrocutions, falling from heights, slip and falling and heat exhaustion (CSIR, 2019; Department of Mineral Resources and Energy, 2023).

2.3. Overview of OHS Performance

In view of the risk profile in mining operations, there are challenges around health and safety in South African mines. Figure 2.2 depicts OHS performance from 1993 to 2022. The performance is disaggregated according to the major mineral commodities (i.e., gold, platinum and coal). As seen in the figure, there has been a significant improvement in safety performance with the number of fatalities decreasing from 615 to 49 in 1993 and 2022, respectively. In 2014, the state, employers and organised labour agreed on several milestones, one of which was to improve safety performance by 20% yearly reaching zero fatalities in 2020. From the statistics presented in the figure, it is seen that this was achieved between 2018 and 2019 with an improvement of 37% (i.e., total fatalities declined from 81 in 2018 to 51 in 2019). In 2020, the industry reported 60 fatalities, which is not only an increase from 2019, but also outside the targeted milestone of zero harm (Mine Health and Safety Council, 2020).



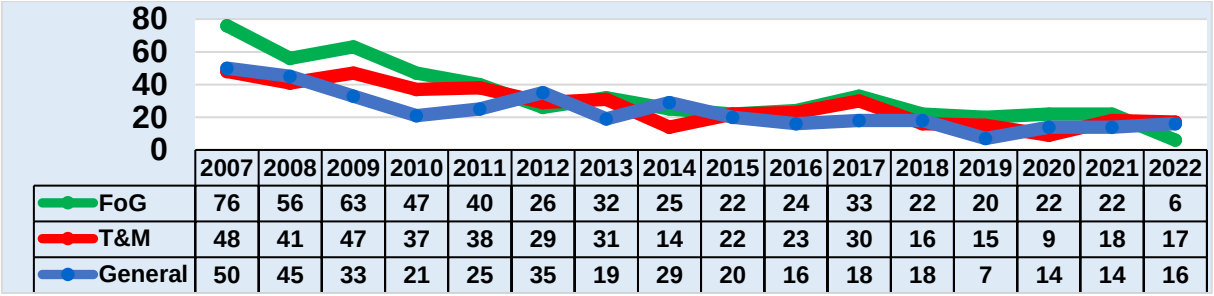
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Gold	426	371	415	315	277	252	207	173	182	172	149	110	105	114	114	85	81	62	51	53	37	44	33	30	39	40	18	26	30	15
Platinum	29	24	45	45	53	44	39	46	49	53	58	64	47	40	53	36	41	34	37	28	28	15	21	27	28	12	20	16	21	18
Coal	90	54	31	45	40	42	28	31	19	20	23	20	16	20	15	20	18	12	12	11	7	9	5	4	10	9	7	11	10	6
Other	70	35	62	52	27	28	35	35	38	42	40	54	32	26	37	29	27	19	23	20	21	16	18	12	11	20	6	7	13	10
All	615	484	553	457	397	366	309	285	288	287	270	248	200	200	219	170	167	127	123	112	93	84	77	73	90	81	51	60	74	49

Figure 2.2: Fatalities by Commodity, 1993-2022

(Source: Department of Mineral Resources and Energy, 2023)

Mine fatalities decreased from 615 to 49 from 1993 to 2022, respectively as can be observed in Figure 2.2. Fatalities per commodities, show that gold was the highest with 426 fatalities, followed by coal with 90 fatalities and platinum with 29 fatalities reported in 1993. In 2022, although fatalities per commodity decreased, platinum was leading with 18 fatalities, followed by gold with 15 fatalities and coal with 6 fatalities.

There are three major contributors to fatalities namely falls of ground (FOG), transport and machinery (T&M) and General type of agencies. Figure 2.3 shows fatalities by agency or category from 2007 to 2022. As seen in the figure, FOG's trend shows a decline from 76 fatalities in 2007 to 6 fatalities in 2022. The fatalities caused by T&M accidents also shows a declining trend with 48 fatalities in 2007 and 9 fatalities in 2020. However, in the year 2022, there was an increase with 17 fatalities reported. This was the highest compared to the other two agencies (i.e., FOG and general types of accidents). As seen in the figure, while the number of fatalities caused by general type accidents declined considerably, they remain a concern with 16 fatalities reported in 2022.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
FoG	76	56	63	47	40	26	32	25	22	24	33	22	20	22	22	6
T&M	48	41	47	37	38	29	31	14	22	23	30	16	15	9	18	17
General	50	45	33	21	25	35	19	29	20	16	18	18	7	14	14	16

Figure 2.3: Fatalities by Agency, 2007-2022

(Source: Department of Mineral Resources and Energy, 2023)

From the overview of OHS performance, it is clear that significant inroads have been made to improve health and safety in the mining industry. While the outcomes have been positive as measured by the decline in the number of fatalities reported, it is clear that there are gaps in terms of mechanisms that have been put in place to address OHS issues. This is taken from the fact that the industry is still reporting fatalities as depicted in figure 2.3. The next section directs attention to understanding the factors affecting health and safety performance at the mines.

2.4. Factors affecting health and safety

There are several challenges affecting health and safety performance in the mining industry and they include (i.e. but not limited to) poor risk assessment and controls of ground conditions, harmful human behaviour when interacting with machinery, occupational health and safety systems, bonuses, and health and safety culture (Mine Health and Safety Council, 2020; Department Mineral Resources, 2019). These are discussed below.

2.4.1. Poor risk assessment and control of ground conditions

The Chief Inspector of Mines (CIOM) alluded that the challenge with most underground mines is the risks associated with falls of ground. This is partly attributed to the diminishing ore reserves leading to mining operations re-opening old areas that are not stable (Department of Mineral Resources and Energy, 2023). The South African gold sector has been leading in terms of injuries and fatalities caused by falls of ground in the mining industry. Between 2021 and 2022, the number of employees who lost their lives from FOG incidents was 26 in the gold sector (Department of Mineral Resources and Energy, 2023). Furthermore, some of the falls of ground, whether seismically or gravity induced, have claimed the lives of more than one person from a

single accident. The Lilly Gold Mine incident claimed three lives after a crown pillar collapsed on the 5th of February 2016 (Cruywagen, 2023). In 2019, seismic related fall of ground at Tau Lekoa Mine claimed the lives of four employees (Geoengineer, 2019).

According to the Department of Mineral Resources and Energy (2017), through the inspectorates' visits to mines, poor compliance to support standards has been a major finding as to the course of accidents. This is in terms of the support standards measured underground as compared to the mine's rock engineering recommendations. For example, panel face support found missing, and friable ground conditions not remedied during entry examinations were the main findings made by inspectors (MHSI,2022; Department of Mineral Resources and Energy,2017).

When poor ground conditions are not mitigated, they result in gravity induced falls of ground. It becomes a greater risk in mines that are highly seismic active, where the unsupported ground would lead to falls of ground after a seismic event. Although over the years, research has been undertaken to understand rock mass behaviour in underground mines by Rock Engineering experts, seismic prediction is still a challenge (FOGAM, 2022). Seismic induced falls of ground also remain a major challenge due to the lack of technological advances that can assist in predicting where or when seismicity will occur. The concern is that most mines are advancing to deeper levels and with that, the risk of seismicity is also increasing. Therefore, there is a need for ground-breaking research in seismic monitoring technology together with a holistic approach that curbs practices that induced falls of ground to reduce injuries and fatalities related to falls of ground (FOGAM, 2022; Tunnicliffe, 2023).

2.4.2. Harmful human behaviour interacting with machinery

The introduction of machinery in the mining industry has been motivated by the need to improve labour efficiency and safety (CSIR, 2019). With the introduction of machinery, a smaller number of employees are required underground and hence the level of exposure decreases (i.e., fewer mineworkers being exposed to OHS risks). While the benefits of mechanisation are evident, the downside has been increasing risks associated with machinery in underground operations. As noted above, the fatalities resulting from machinery were the second highest in the mining industry as depicted in figure 2.3. In 2023, machinery type accidents were leading with 17 fatalities compared to 6 and 16 fatalities caused by fall of ground and general type accidents respectively (Minerals Council of South Africa, 2023).

There are a variety of factors causing machinery accidents and these vary from human error, inadequate communication, equipment malfunction, poor maintenance, poor traffic risk assessment, and lack of awareness. Willmer (2020) pointed out that the human factor is the major contributor to most transport collisions in the mines. Human errors range from lack of supervision, poor communication, shortcuts and fatigue (Wilmer, 2020).

Inspectors have noted several substandard conditions that cause transport and machinery accidents. There have been findings where a pre-use checklist is not properly completed prior operation of machinery. Even though these were findings during inspectors' visits, inspectors were more reluctant to issue stoppage instructions for failure to complete checklists as they deemed it an administrative failure (MHSI,2022). The incompletion of the checklist was not considered an unsafe condition warranting a stoppage because the physical inspection of the machine was safe although no pre-use inspection checklist was filled in. Investigation outcomes also revealed that the mines adopted a tick box approach, in other words, ticking a checklist without physically checking the condition of the machinery before it is used.

According to MHSI (2022), there was an accident investigation in the Northwest province where two locomotives collided and, in the process, a pedestrian was injured on the hip. The root cause of the accident was found to be non-compliance with the mine's procedure for traffic management. Even though the Proximity Detection System (PDS) warned the operator of an oncoming locomotive, the operators acknowledged the warning but did not stop. The reason for negligence was that the operator was in a haste to transport employees to their working places (MHSI, 2022). The behaviour of employees operating machinery remains an area of concern.

According to Jennica (2019), the bigger the trucks manufactured, the more blind spots for operators and this creates risks of collisions. The government's strategy to reduce trackless mobile machinery (TMM) collisions is for mines to install an automatic retarding system on their TMMs. The mining operations have been given a deadline of December 2024 to comply with these regulations (Department of Mineral Resources, 2023). In response to this timeline, the Minerals Council of South Africa has requested that the government extend the deadline for the industry to comply. The reasons cited by employers were that the technology was expensive, and the market did not have competitive pricing to ensure that all mines remain profitable (MHSC-FOGAM, 2023).

2.4.3. Occupational Health and Safety (OHS) Systems

The OHS system defines how the organisation behaves towards health and safety and gives employees guidance on OHS matters. OHS policies and procedures can determine a company's safety performance. OHS Systems includes risk assessment which provides the foundation of health and safety as required by the Mine Health and Safety Act.

Weick, et al. (1999), indicated that organisations experience errors when they are routine based, creating a gap in changing events that are not detected timeously. As such, the OHS system to allow for continuous improvements specifically in underground operations where conditions change rapidly. The approach to dealing with OHS by an employer as highlighted by Silbey (2009) is that organisations can improvise or adapt to changing environments. This is opposite to the over-reliance on procedural routine as the risks at mines are unpredictable.

The Westray Mine explosion where 26 miners were killed in Nova Scotia Canada, is a typical example of over-reliance on procedural routine. While production procedural routines were followed, monitoring of methane accumulation was conducted at ad-hoc intervals as part of the mine's procedure, and this oversight resulted in an explosion (Shaw, et al., 2010). According to Silbey (2009), the mine's procedure should have required the testing of methane daily based on the prominent risk in that specific section. Employers must put in place organisational procedures that allow for flexibility and are adaptable to changing working environments. These systems are crucial in terms of providing employees with the flexibility to adapt to the risk dynamics encountered (Silbey, 2009).

The International Research of Organisations proposes that employers should always think about the possibility of an adverse incident occurring in the workplace (Shaw, et al., 2010). The premise is that these employers are found to be better prepared when anticipating the unexpected in addressing the risk to OHS at mines (Weick & Sutcliffe, 2007). Although risks such as seismicity, falls of ground, fires and explosions cannot be eliminated, they can be significantly reduced. The effectiveness of risk management is significantly influenced by the development and implementation of safety standards in alignment with the organisation's culture. This means that there is a relationship between the culture of the employees and how safety initiatives are implemented to achieve positive results (Weick & Sutcliffe, 2007; Shaw, et al., 2010).

2.4.4. Bonus

Amongst the safety initiatives implemented to improve OHS is the safety bonuses. There has been debate on whether safety bonuses contribute to improving OHS performance or worsen health and safety issues. It has been submitted that a good bonus system as an incentive for employees improves OHS standards. Although this system provides monetary gains for employees, the New South Wales Minerals Council (2004) disagreed with this view. They argued that any incentive to OHS may often invite a culture of short-cutting procedures, consequently not showing the true reflection of the mine's safety performance. Daniels and Marlon (2005) suggested that perverse motivation tends to override the effectiveness of the intended OHS incentives. This may result in accident reporting by employees declining leading to a situation where underlying organisational challenges are not picked up. In practice, there are several underreported accidents resulting from OHS incentives, which support the argument. Some studies argue that incentives can improve OHS performance. Terrey (2005) highlighted that safety and production incentives have caused a significant improvement in OHS performance at mines.

2.4.5. Health and Safety Culture

The culture towards OHS becomes pivotal particularly when it comes to the implementation of controls in any organisation. Anticipating catastrophic events and responding adequately after occurrences, can limit the severity of the risks (Weick & Sutcliffe, 2007; Shaw, et al., 2010). Evidence from Australia in New South Wales supports this theory and has highlighted the relevance of organisational culture in supporting OSH performance in the mining industry (Shaw, et al., 2010).

Various methods can be used to assess health and safety culture in an organisation. The safety maturity model is a framework that can be applied in OHS management and culture development. Most of the maturity models were developed by Fleming and Hudson. Although this research is not primarily focused on different safety maturity models, a simple model from United Kingdom Coal was selected to explain the concept as shown in Figure 2.4 (Foster et al., 2013).

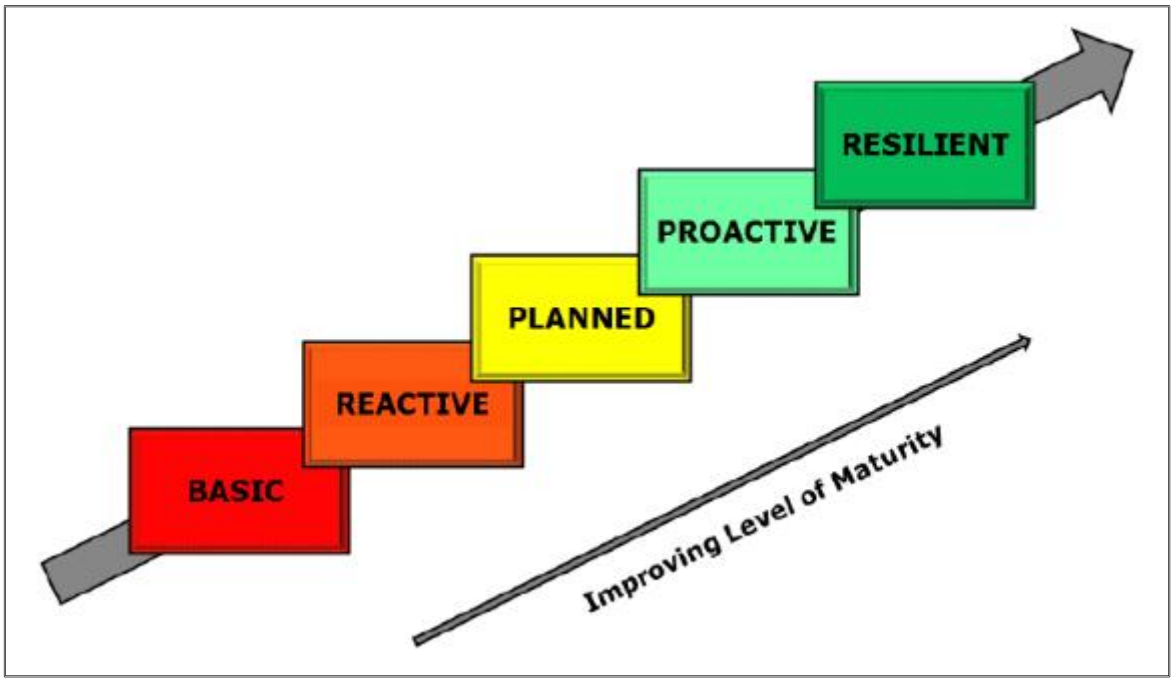


Figure 2.4: Safety Maturity UK Coal Journey Model

(Source: Foster et al., 2013)

The Coal Journey Model outlines a five-phase progression, and this includes the following stages:

- Pathological/Basic phase is characterised by a lack of safety culture and as such organisations are found to only respond to the regulator's interventions.
- Reactive phase is where safety becomes alarming, and organisations only respond when accidents are reported.
- Calculative/Planned phase where safety is management driven and the burden is placed on employees.
- Proactive phase is where the workforce is actively involved, and management is proactive in terms of foreseeing the unexpected and putting systems beforehand.
- Generative/Resilient where safety is a culture and employee, management and organised labour are involved and working together to implement integrated and effective safety systems. (Hudson, 2007: Foster et al., 2013)

According to Foster et al (2013), proactive mines are found to be better prepared to deal with OHS hazards than reactive mines. Proactive mines also adopt leading best practices to enhance their OHS culture. However, although an increased number of best practices are available in the OHS space, not all mines tend to adopt these

practices due to various reasons; some of which are financial (Minerals Council of South Africa, 2022: Foster et al., 2013).

There is also the Swiss Cheese Model of incident causation which considers multiple layers that could have been breached before an accident could occur (Reason, 1997). Figure 2.5 depicts the Swiss Cheese Model from the hazard identification to the loss or accident that may occur. This model has been widely accepted by OHS practitioners for incident investigations. Depending on the mines, the layers may refer to OHS systems, environmental conditions, and human behaviour. As shown in the Figure, the Swiss Cheese Model illustrates that an accident occurs when all layers, from latent failure (OHS system/policies/procedures) to active failures (FOG/collision/fire/injury/death) are breached.

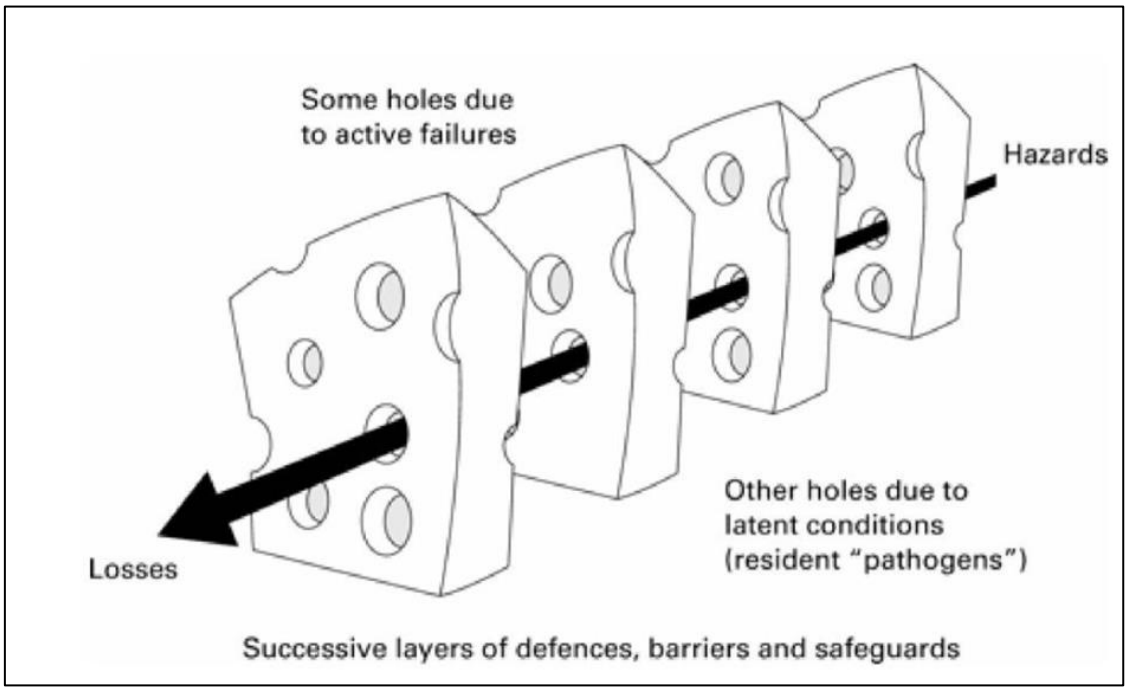


Figure 2.5: Swiss Cheese Model

(Source: Reason, 2000)

This theory has assisted in providing quality investigations and inquiries that are not biased. What has been observed from experience is that employers tend to blame employees while employees tend to blame employers during accident investigations. As such it is important that investigations are objective to prevent reoccurrences and this remains a challenge (Dekker, 2006).

2.5. Key areas for improving OHS performance

Achieving zero-harm requires all parties, that is the state, mining companies and organised labour, including employees to play their roles (Shaw, et al., 2010). The state's role is to create an environment that will promote health and safety, through strong institutions and a rigid legal framework where employers and employees/organised labour can easily participate in. Employers are required to foster organisations that promote health and safety without violating the rights of employees. Employees need a practice a culture of compliance particularly when it comes to mine procedures and take ownership to protect their health and safety (Mine Health and Safety Council, 2020). The fundamental fabric to improve OHS is therefore embedded in mining legislation, stakeholder relations, and enforcement measures.

2.5.1. Mining Legislation

Mineral policy formulation is a subject that has been explored vastly by different scholars throughout the decades. Every country has a unique version of a National Mineral Policy (NMP). This is due to a variety of factors and strategic objectives that a country aligns with (Otto and Corders, 2002).

National Mineral Policy provides a pivotal foundation for building a nation's institutions, laws and regulations governing minerals (Otto, 1997). The desired outcome for an NMP is to create coherent guidance in the drafting of policies and laws and directing administrative institutions in promoting the government's objectives. Although this may be difficult to achieve, Otto (1997) argued that if NMP is documented and made public, countries can alleviate uncertainty in perception. Countries that do not have a publicised NMP often create opacity in governments' administration towards OHS regulation.

The National Resource Governance Institute (NGRI) (2015) discussed NMP influence in the legal hierarchy of policy framework and implementation, across the regulatory arrangement. This legal hierarchy is shown in Figure 2.6 below.

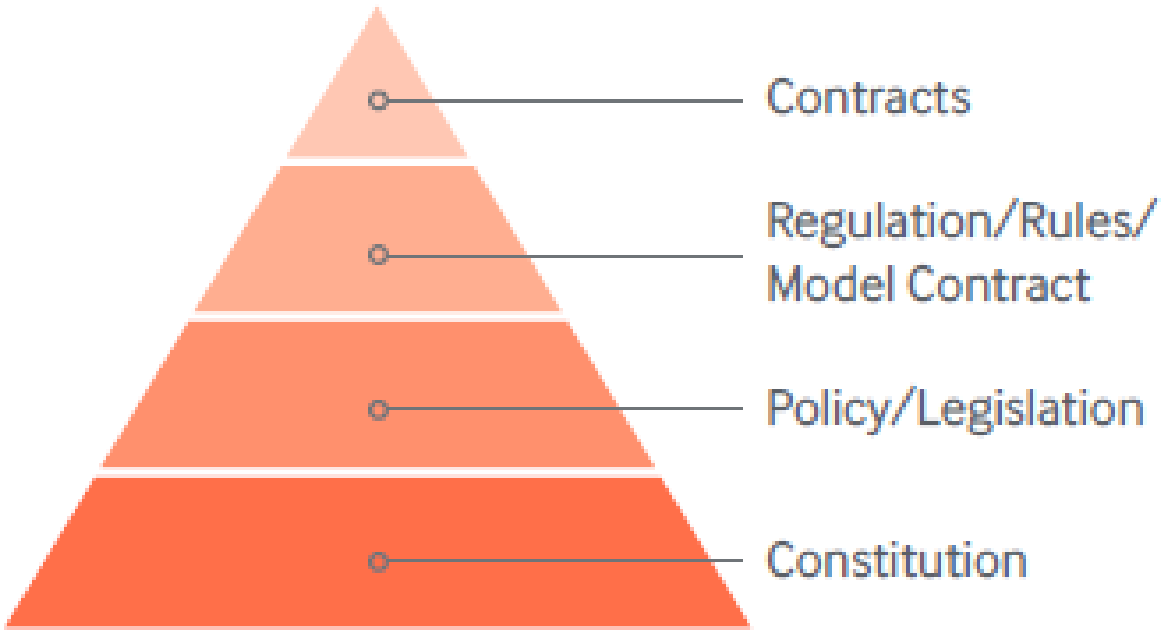


Figure 2.6: The Legal Hierarchy

(Source: National Resource Government Institutions, 2015)

According to NRGI (2015), the legal hierarchy is established in the Constitution. The Constitution provides the fundamental convictions of governments concerning human rights. For example, the South African Bill of Rights under section 11 mentions that everyone has a right to life. The section of the Constitution forms a basis that influence the policies and/or legislations drafted and implemented. In this case, the mining industry is obligated to promote OHS as mandated by the Bill of Rights where mine employees have the right to life.

The second layer on the hierarchy addresses policies and legislations which are a set of methods that inform the requirements towards the behaviour of a particular sector. For instance, the MHSA guides the behaviour of the mine employers in relation to protecting the lives of those working in the mining industry. For example, section 23 of the MHSA provides mine employees with the right to refuse or withdraw from any unsafe or dangerous work.

The third layer on the hierarchy consists of regulations/rules/model contracts which deal with the practical implementation of the set legislation, providing more detail about the obligations. These are mostly driven at the institutional or ministry level. For example, the MHSA regulations Chapter 8 provide more details on OHS with regards

to operations of machinery at mines, specific requirements of safety devices on conveyor belts, and other requirements.

The final layer on the hierarchy addresses contracts which often deal with the terms and conditions not covered in legislation. These are normally established through negotiation between two or more parties. The National Resource Government Institutions (2015) mentioned that most of these contracts are private. For instance, the mines in compliance with the MHSA, may formulate a health and safety police where all mine employees are required to adhere to particular OHS standards whilst working at the mines.

To this end, the MHSA stands as a NMP that safeguards health and safety in the mining industry. All stakeholders such as the state, employer, organised labour and employees have responsibilities in terms of achieving to the objectives of the MHSA.

2.5.2. NMP Stakeholders Collaboration

There are often several concerns around NMP formulation, mainly relating to the regulatory regime and implementation thereof. Frecker (1981) identified the stakeholders that affect the regulatory regime and implementation thereof. These include government, landowner, community, and the mining company. Conflict often arises between stakeholders as they have different interests.

From the five categories of stakeholders, the major driver of the NMP is the government. While this is the case, consideration of the stakeholders' interests including conventions entered into by a country with international organisations such as the International Organisation of Labour (ILO), World Health Organisation (WHO) and African Union is crucial for ensuring compliance with international standards which have a bearing on the mining industry's competitiveness (Roux, 2002). Essentially, formulation and implementation of NMP cannot be done independently but needs to capture all stakeholders' interests while in alignment with international organisations.

The difficulty in the implementation of any policy is that there is no standardised approach. Different countries, institutions and political climates can create an adverse challenge for implementation and subsequent monitoring of compliance in accordance with the requirements contained in the policy. Thus, a unique approach to policy evaluation should be investigated on a unilateral basis, as countries have different objectives. According to Mensah et al (2015), they demonstrated this as they assessed

the environmental impact of mining in Ghana. They outlined that although there was good mining legislation in Ghana, mining continues to have a detrimental impact on the environment. This has been attributed to poor regulatory enforcement (Mensah et al., 2015).

The Future Search Conference, which endeavours to foster group shared vision, established that legislative input should be driven by collaboration between the state, employers, and labour. This collaboration was seen at its best during the promulgation of the MHSA in 1996. The aim of promulgating the MHSA was to ensure that there is in place a legislative framework that is clear and enforceable to the mining industry. More so, the Inspectorate must be adequately resourced as custodians of the MHSA to support its implementation and enforcement (Shaw, et al., 2010).

2.5.3. Enforcement Strategies by the Regulator

The enforcement guideline pyramid provides a clear view of avenues that need to be considered when implementing enforcing measures. Figure 2.7 illustrates the enforcement pyramid as employed by the Mine Health and Safety Inspectorate (MHSI).

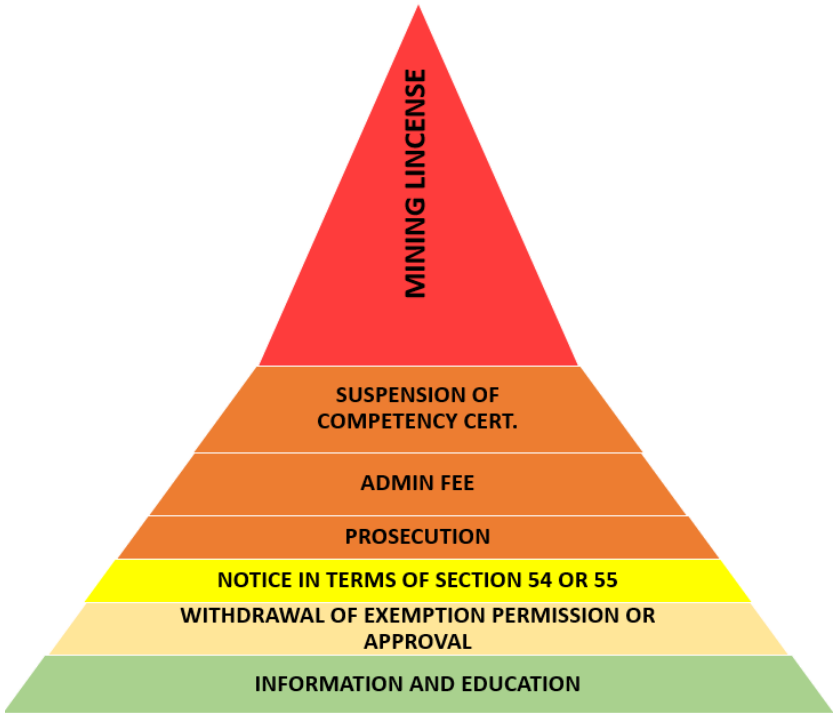


Figure 2.7: MHSI Enforcement Pyramid

(Source: Department of Mineral Resources, 2011)

According to the MHSA enforcement pyramid, providing information and education is the first stage in the enforcement hierarchy. It is important that mines are informed and trained on their responsibilities before taking accountability. During this stage, the regulators must utilise the MHSA to ensure that legal appointees, such as mine managers, occupational hygienists, engineers etc., have qualifications and competencies specified.

For example, an underground mine manager is required to have a mining related degree with at least two years' experience or mining related diploma with a minimum of four years' experience. In addition, it is required that the manager possess a Mine Manager's Certificate of Competency which includes a legal examination of the MHSA prior to being appointed. The qualification and competencies are to ensure that managers are well informed about their legal responsibilities.

After providing information and training, should there be any contravention or breach of the Act, the enforcement guidelines provide for corrective measures to be escalated to the withdrawal of exemptions and permission at the mines. The application of the second enforcement layer is seen in the following example although not exhaustive. One of the measures to safeguard communities OHS, MHSA prohibits mines from blasting within 500 meters of community structures or any other structure. Moreover, for permission to be granted, proof of risk assessment mitigating the adverse effects of blasting and proper consultation with affected parties is required.

According to the DMR (2018), there was an instance where a mine in Lichtenburg was permitted to conduct blasting within 100m of the community's graveyards. The permission was only granted after the mine provided a risk assessment to mitigate the risk of damage caused by blasting operation on the heritage graveyard and after a consent letter was submitted illustrating that the community was consulted. However, after this approval, the community submitted a complaint letter opposing the permission granted by the regulator. The investigation outcome resulted in the blasting permission being withdrawn (DMR, 2018).

The preceding case was chosen because numerous complaints have been filed by communities against mines to the regulator. This typically compels the regulator to revoke permissions when violations are discovered or when there is no consultation.

This enables communities to preserve their environment, health, and safety in line with the MHSA provisions.

The next level on the enforcement guideline hierarchy is the notice of instructions such as MHSA section 54 or 55 instructions which deals with dangerous occurrences or conditions (Department of Mineral Resources, 2011). The MHSA section 54 instructions provide inspectors with the power to stop the mine or part of the mine when there is reason to believe that the mine is unsafe. The adverse effect of a mine being stopped is low production output which ultimately can have a detrimental effect on the performance of the mine affecting its cash flow (UCT,2018). Hence, MHSA section 54 instructions are highly contested. A statutory instruction to stop operations is often issued in most fatal accidents to ensure that the mine addresses and remedies unsafe conditions.

The next stage of the enforcement guideline is mine prosecutions. Although prosecution is at the centre of the enforcement guideline hierarchy, it has been less explored in the South African mining industry. The upper level of the enforcement pyramid provides for administrative fines, suspension of certificates and ultimately cancellation of mining licences (Department of Mineral Resources: 2011; Nelwamondo and Mpanza 2016)

2.6. Assessment of SA Mining Legislation

This section provides an overview of key legislation governing the mining industry in South Africa. Particular discussion is directed to the MHSA where its objectives, requirements and provisions towards mine prosecution.

2.6.1. Overview of Key Mining Legislations

South Africa has several legal frameworks that regulate the exploitation of its minerals. Most of the legal framework is centred around the country's current mining legislation, Mineral and Petroleum Resources Development Act No. 28 of 2004 (MPRDA), which governs all subsidiary regulations of mining. The subsidiary Acts include the Mineral and Petroleum Resources Royalty Act, Precious Metals Act, Diamonds Act, Mine Health and Safety Act and others. The MPRDA is also supported by numerous other legislations governing other aspects, for example, the interface between mining and the environment. These legislations include the National Environmental Management Act (NEMA), National Water Act (NWA) and others.

The MPRDA defines the legal aspects of acquiring mineral rights and clarifies the ownership and the period of leasing rights. For example, the MPRDA does not distinguish between international or domestic applicants as right holders and thus joint ventures are accepted. This creates a platform for person(s) that is meant to carry liability and accountability according to the OHS legislation for leases issued out in their jurisdiction. The mining right applications as provided for in the MPRDA require that the Inspectorate makes comments regarding health and safety before the right can be issued. During this stage, the applicant is given strict comments on the provisions of the MHSA for employees.

The mining right holder is also referred by MPRDA to comply with NEMA, which requires the mining right holder to maintain and preserve the environment. In other words, the subject of sustainable development is introduced and requires Environmental Management Plan (EMP) approval before the right has been granted. Moreover, if the environment is not maintained it can give rise to adverse health and safety of communities, this will also be in contravention of the MHSA. Therefore, the EMP must cover aspects of the environmental degradation which may be mitigated over the life of mine and beyond mine closure.

2.6.2. History of SA Mining Legislation

The history of South African mining legislation started from Mine and Works. As legislation improved, Mines and Works Act No. 12 of 1911 was repealed by the Mines and Works Act No. 27 of 1956. A major Coal Brook mine disaster occurred in 1960 where 437 employees were buried underground due to poor mine design. Then with more accidents, the Mines and Works Act 27 of 1956 was repealed by the Minerals Act No. 50 of 1991 (Dzingwa, 2019; Stanton, 1995).

In the history of mining in South Africa, there have been numerous tragic disasters and accidents that have resulted in a significant loss of life among mineworkers. For instance, during the decade from 1984 to 1994, prior to democracy, a total of 7,400 employees tragically lost their lives in mining-related incidents. Furthermore, in the period from 2012 to 2022, an additional 844 fatalities were recorded (Stanton, 1995; Department of Mineral Resources, 2023).

The alarmingly high number of mine disasters and fatalities prompted former President Nelson Mandela to order the establishment of the Leon Commission of Inquiry to

investigate the poor health and safety conditions in the mining industry. The Vaal Reefs disaster expedited the work of the Leon Commission of Inquiry. The National Union of Mineworkers (NUM) and Mine Workers Union supported the government's initiative to review the mining legislation (Mail & Guardian, 1995). The commission commenced its work on 18th July 1994 and began compiling its report on 24th of August 1994. The report was completed in December 1994 and published in March 1995. The following are the findings and recommendations of the Leon Commission of Inquiry (Stanton, 1995).

- The outcome of the Leon Commission of Inquiry resulted in the promulgation of the MHSA as existing mining legislation was deemed to be insufficient.
- Minerals Act No, 50 of 1991 focused mainly on safety aspects without addressing the occupational health hazards of mineworkers. Hence it was repealed.
- The new Mine Health and Safety Act was to be drafted so that it could provide a comprehensive legal framework for creating a healthy and safe working environment.
- The Mine Health and Safety Bill was approved by parliament and passed into law in 1996 and the implementation thereof started in February 1997.
- With the promulgation
- Promulgation of regulations and measures to protect the health of workers including occupational and medical surveillance programme with specific reference to tuberculosis.
- The Mining Qualifications Authority (MQA) was tasked with ensuring that appropriate training and certification of all workers in the mining industry takes place.

2.6.3. Mine Health and Safety Legislation

The MHSA provides a platform and guidance to the mining rights holders on health and safety at the mine. As quoted from MHSA, its objectives are as follows:

"1. Objects of Act
The objects of this Act are-
(a) to protect the health and safety of persons at mines;
(b) to require employers and employees to identify hazards and eliminate, control and minimise the risks relating to health and safety at mines;
(c) to give effect to the public international law obligations of the Republic that concern health and safety at mines;
(d) to provide for employee participation in matters of health and safety through health and safety representatives and the health and safety committees at mines;
(e) to provide for effective monitoring of health and safety conditions at mines;
(f) to provide for enforcement of health and safety measures at mines;
(g) to provide for investigations and inquiries to improve health and safety at mines; and…." (MHSA, 1996)

The Act requires that the mining right holders conduct a proper risk assessment before undertaking work and provide monitoring systems for any risk anticipated to be encountered during mining operations and upon closure. This also places expectations on the regulator to enforce health and safety at the mines.

2.6.3.1. Ownership

In terms of the MHSA definitions, the employer is liable to maintain health and safety at mine whether operational or not. This refers to shafts that are already being demolished to ensure that no person is injured. However, there is a problem in South Africa with approximately 6,000 derelict and ownerless mines where health and safety responsibility has been conferred to the government (Van-Druten & Bekker, 2017). Hence, there is very little to zero health and safety accountability as most shafts were abandoned by their previous owners and that responsibility has been taken by the government.

According to the MHSA, although they may be an Executive representing the 'owner', the Act requires that the responsibility ultimately be conferred to one person who is solely responsible and accountable for health and safety at the mine. That person will be appointed under section 2A (3) of the MHSA as the Chief Operating Officer (CEO). The MHSA therefore states that:

"(3) If the employer is a body corporate, the functions of the chief executive officer contemplated in subsections (1) and (2) may be performed by a member of the board of the body corporate designated by the board" (MHSA,1996).

2.6.3.2. MHSA Expectation to the Owner

As noted, the employer is expected to as far as '*reasonably practicable'* to maintain health and safety at the mine (MHSA, 1996). The term reasonably practicably becomes pivotal for discussions when apportioning accountability and liability.

2.6.3.3. Criminal Liability and Penalties

The MHSA covers criminal liability in Section 86A. If an accident occurs, the mining right holder cannot simply argue that he/she issued an instruction to prevent the accident as a reasonable person. The MHSA requires due diligence where there is evidence that a risk assessment and/or outcome-based process was conducted to mitigate the risk identified, and that proper safety systems were put in place and training was conducted. This evidence of remedial measures can therefore be used by the mining right holder to be exonerated (MHSA, 1996). Table 2.1 presents the penalties that can be issued upon contravening the MHSA.

Table 2.1: Maximum fines or period of imprisonment that can be imposed for offences

Section under which convicted	Maximum fine and term of imprisonment	Summary of Sections
2	R1 000 000 - or 5-years imprisonment	Employer to ensure health and safety at mines. Includes (mine design, the appointment of competent persons, providing safe equipment and tools, and training.
2A	R1 000 000 - or 5-years imprisonment	
3	R1 000 000 - or 5-years imprisonment	
5	R1 000 000 - or 5-years imprisonment	
6	R1 000 000 - or 5-years imprisonment	
7(1)	R1 000 000 - or 5-years imprisonment	
10	R1 000 000 - or 5-years imprisonment	
11	R1 000 000 - or 5-years imprisonment	
15	R500 000 - or 5-years imprisonment	
16	R500 000 - or 5-years imprisonment	
21(1),(3) or(4)	R500 000 - or 5-years imprisonment	
22	R200 000 - or 2-years imprisonment	
24	R500 000 – or 5 - years imprisonment	
52	R200 000 - or 2-years imprisonment	Employers/Employees duty to assist cooperate with inspectorate in investigations, inquiries, summons, answering of questions.
53	R200 000 - or 2-years imprisonment	
62	R200 000 - or 2-years imprisonment	
66(3)	R200 000 - or 2-years imprisonment	
70	R200 000 - or 2-years imprisonment	
71	R200 000 - or 2-years imprisonment	
84	R200 000 - or 2-years imprisonment	Legal Proceedings and Offences
85	R200 000 - or 2-years imprisonment	
87,88,89,90	R50 000 - or 6 - months imprisonment	
88	R300 000 - or 3-years imprisonment	

(Source: MHSA, 1996)

The MHSA has minimum and maximum fine amounts of R50 000 and R1 000 000, respectively. The minimum and maximum imprisonment periods are six months and 5 years, respectively. Column 1 guides with respect to the sections that may have been contravened, and column 2 provides the resulting penalty. Any contravention under sections 2 to 11 will lead to a 5-year imprisonment or R1 000 000 fine. It is seen from the table that from sections 2 to11 of the MHSA, the mining right holder needs to conduct proper due diligence towards health and safety. The due diligence encompasses conducting risk assessments, compiling various documents such as codes of practice/procedures, providing training to employees and maintaining and monitoring health and safety systems (Guild *et al*, 2001).

Sections 15 to 85 include provisions for administration from medical surveillance, duties of employees, reporting and inter-action and compliance with the regulator with regards to health and safety. Penalties for contravening these sections include either paying between R200 000 and R500 000 and imprisonment ranging between 2 to 5 years.

Sections 87, 88, 89, and 90 as noted on Table 2.1 cover matters of confidentiality, honesty, and hindrance to performing the MHSA by any person, of which the breach is construed to be an offence. The sentences and fees applicable to the failure to comply with these sections include fines of between R50 000 and R300 000 and imprisonment from 6 months to 3 years. In addition to the penalties provided by the MHSA, matters may be referred to court where harsher penalties may be imposed, or leniency may be given when an appeal is raised.

2.7. MHSA and Mine Prosecutions

The main purpose of mine prosecutions is to ensure that justice is served when an offender is found guilty. Mine prosecutions ensure that a well deserving punishment is issued, and a deterrent is dispersed to the industry to prevent reoccurrence (Hopkins, 2005). It is important that prosecutions are practically fair, unbiased and consistent to every offender. Seymour (2009) mentioned that prosecution is necessary to eliminate “rouge operators” and “cowboy operators” in the mining industry, where most are repeat offenders. The characteristics of these “rouge and cowboy” operators include those that have little to no regard towards health and safety, take shortcuts and are often repeat offenders of health and safety mining regulations.

In South Africa, mine prosecution outcomes can either follow an inquiry or inquest process, as shown in Figure 2.8. The regulator will conduct an inquiry whereby the inspectorate can only recommend prosecution. The courts known as the National Prosecuting Authority (NPA) are the only entity to pursue prosecution through inquests. As shown in Figure 2.8, inquests are conducted by legal experts who are acquainted with mining background (Mine Health and Safety Act (1996); Nelwamondo and Mpanza, 2016; Staton, 2003).

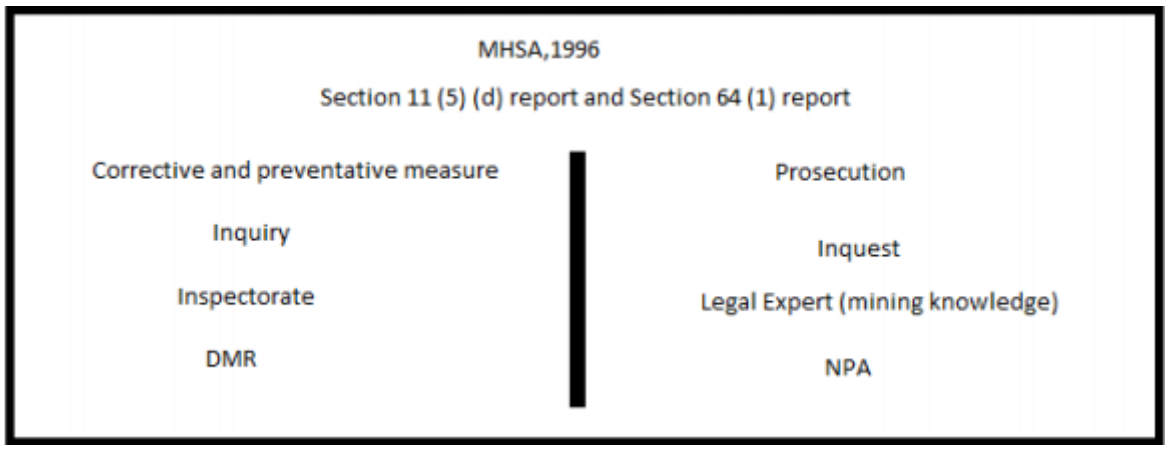


Figure 2.8: Inquiries and Inquest

(Source: Nelwamondo and Mpanza, 2016)

The nature of the pursuit of mine prosecution initially begins with an inquiry however, sometimes depending on the nature of the accident, the process can move directly to an inquest. The MHSA empowers the Chief Inspector of Mines (CIOM) to initiate an investigation into any accident that occurs under section 60 of the MHSA. The mine is obligated to conduct an investigation under section 11(5) of the MHSA. Both investigations are important in providing evidence during the Inquiry or the Inquest process that would be initiated (Mine Health and Safety Act,1996; Nelwamondo and Mpanza, 2016).

Section 65 of the MHSA then allows the CIOM to instruct an inspector to preside over an inquiry. During the inquiry process, witness statements are taken under oath, and admissible evidence is submitted to the inquiry records. Inquiries are mainly conducted by the inspectorate and at the end of the inquiry, the presiding officer will produce a section 72(1)(b) report which provides the findings, remedial actions of the accident, and recommended prosecutions if deemed so.

Finally, section 72(3) makes provision that the CIOM may submit the report to the relevant Attorney General at the NPA. Several terminologies such as personal liability and culpability of the offender are critical in the prosecution's success, hence the next discussion provides more insights on these terms.

2.7.1. Liability

Liability refers to legal responsibility for one's act or omission (MHSA, 1996). As alluded to, the South African mining legislation states that, in cases where a company is represented by several boards of directors, board members must be represented by an individual. The individual will be appointed under Section 2A (2) of the MHSA as the Chief Executive Officer (CEO). Furthermore, the MHSA places an obligation on the CEO to appoint a mine manager under Section 3(1)(a) of the MHSA, who will be responsible for the daily operation of the mine. If beyond doubt the CEO and mine manager through prosecutions were found to have contravened the Act, both the individual (CEO/Mine Manager) and the corporate entity may be held to account for their failure to comply (Hopkins, 2005).

To a certain degree, companies may be held liable depending on the consequential circumstances of the transgression made at the management level. This was demonstrated in the Gretley Colliery disaster where both the management and the company were held liable (Australian Mine Safety Journal, 2009). Through this outcome, the mine management was held liable for not carrying out their legal responsibility on OHS at the mine.

2.7.2. Culpability

The term culpability can be defined on a scale of justice to mean the degree of offence committed. In simple terms, the blameworthiness of the offender (Hopkins, 2005). This implies the level of severity the offence carries. The more culpable the defendant is, the more likely it is for prosecution to be considered.

The enforcement guidelines of the MHSA indicate that the inspectorate may recommend prosecution to the NPA once the contravention is associated with death or an injury. Furthermore, the evidence relied on should be admissible to the offence committed, and in the "public interest" (Department of Mineral Resources, 2011).

Employers are given a duty to maintain a healthy and safe environment for mine workers as far as reasonably practicable. Although this does not restrict the possibility of death or injury occurring at the workplace, the circumstances leading to death or injury, depending on the culpability of the liable person, prosecutions may be considered.

2.7.3. Status of Mine Prosecution in the South Africa Mining Industry

Nelwamondo and Mpanza (2016) conducted a study on the consideration to re-introduce of mining courts in the western region of Gauteng in the country. Figure 2.9 below depicts the prosecution rate versus the MHSA Section 72 reports completed. The MHSA Section 72 reports are compiled by the presiding officer after the inquiry with recommendations for either mine prosecution or not. As shown in Figure 2.9, mine prosecutions rate between 2005 to 2016 has remained at zero.

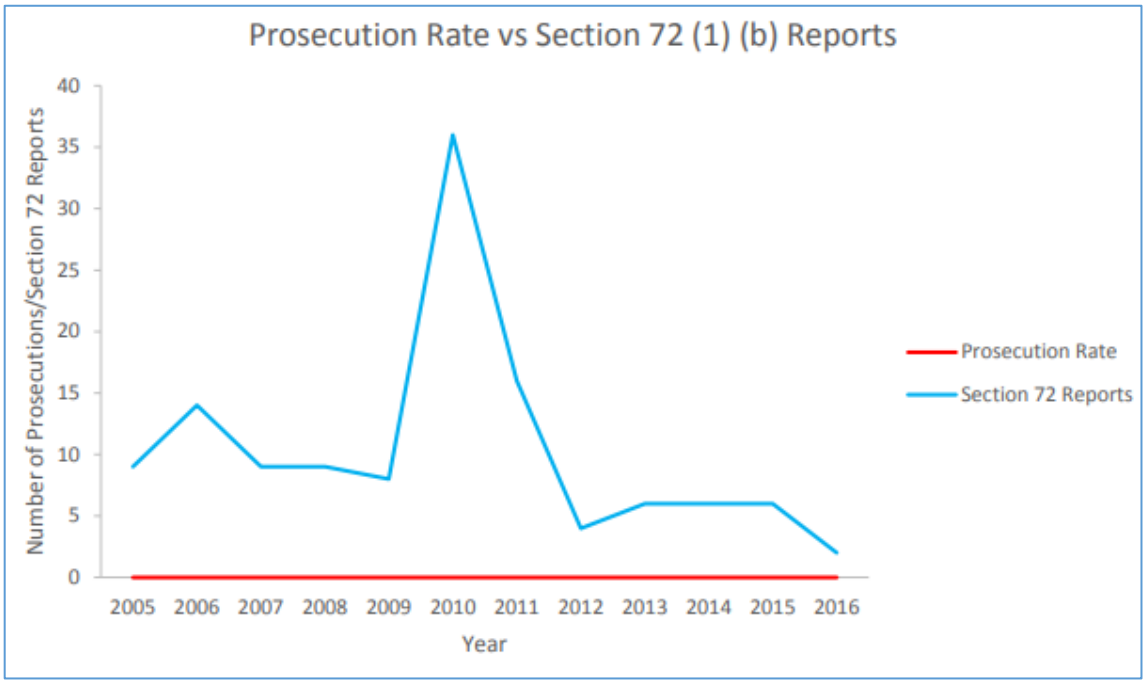


Figure 2.9: Prosecution against the received Section 72 Reports

(Source: Nelwamondo and Mpanza, 2016)

2.7.4. Factors Affecting Mine Prosecution Outcomes

Nelwamondo and Mpanza (2016) research indicated that some of the reasons for the low mine prosecution rate is that MHSA Section 72 reports are not standardised. It was highlighted that Presiding Officers determine the structure of the reports, leading to variations in the quality of the reports. It was also raised that the prosecutor lacks comprehension of the technical mining aspects, and this affects the ability to effectively

prosecute cases (Nelwamondo and Mpanza, 2016). The lack of involvement from the DMRE in the process of prosecution was also identified as an issue. According to (Nelwamondo and Mpanza, 2016), the MHSA Section 72 reports recommendations from the DMRE are sometimes ambiguous making it difficult to openly link with criminal law.

The other challenge is in terms of the shortage of inspectors. Since the introduction of the MHSA, the inspectorate has been struggling to deal with repeat offenders. As a result, mine accidents related to falls of ground and mine transportation continue to take place on an annual basis without any successful prosecutions (Mine Health and Safety Council, 2020).

2.7.5. Measures to Improve Mine Prosecution Rates

The Future Search Conference participants argued that there should be a balance between enforcing penalties (being-punitive) and compliance (being-supportive) (Shaw, et al., 2010). This approach is complex as the extreme ends of both sides can result in a negative response from the mining industry.

If an inspectorate is only punitively driven in its enforcement approach, employers will tend to become defensive and hide accidents. Haines (1997) indicated that employers who work out of fear of penalty of OHS non-compliance and possible prosecutions, take a defensive approach, thereby making OHS a legal battle with the lawyers. Haines and Hall (2004) discussed that an upsurge of perpetually dishonest employers to the Inspectorate, who only comply with the minimum standard of the law, will be evident. Haines (1997) also argued that there is little evidence that a highly punitive approach to enforcement has yielded positive OHS results. Such a strict approach is encroached by miscommunications and mistrust between the regulators and those being regulated.

Alternatively, there is a supportive or advisory enforcement strategy which simply means that the regulator will only provide guidance or advice for non-compliance found at the mine. However, the advisory enforcement strategy has limitations. A study in the United States of America and the United Kingdom provides evidence that points to a contrast between mines that were visited by inspectors and those that were visited by consultants or advisors. The results showed that employers who were visited by the Inspectorate had a 20 to 25 percent improvement in OHS claims while those visited by consultants did not improve (Shaw, et al., 2010). From experience, a purely advisory

Inspectorate does not assist as repeat offenders do not see the need to improve as no penalties are instituted.

A combination of both punitive and supportive strategies for enforcement may be a solution to improving OHS at mines. Gunningham and Johnstone (1999) highlighted that Inspectorate enforcement measures need to be adaptable to discourage repeat lawbreakers while supporting employers that are self-motivated to comply and improve OHS. The combined adaptable enforcement approach (punitive and supportive) needs to be considered at a higher level by the inspectorate to improve OHS.

2.8. Case Study – The Gretley Colliery disaster

The Gretley Colliery mine disaster occurred in Australia in 1996 and the lives of four (4) mine workers were claimed (Australian Mine Safety Journal, 2009). Insights into the case provide an understanding of how mine prosecutions have been implemented and the challenges that have been faced.

2.8.1. The Accident

On the 14 of November 1996, around 5:30 am after nightshift, employees were engaged with mining operations where a C heading was developed through the coal seam utilising a continuous miner. The crew consisted of a team of eight (8), where four worked at the face at 50/51 panel and the rest at the crib room a few meters away. Whilst still busy cutting through the heading, there was water ingress in the working place through a hole created by the continuous miner which flooded the area. The continuous miner weighing approximately 35 tonnes was swept 17 meters backward where it hinged against the ribs or sidewall. The four employees were submerged under water and drowned, whilst the other four survived by being in the crib room (Australian Mine Safety Journal, 2009: Hopkins, 2005: Seymour, 2009).

The water ingress was from an old mine workings of the Young Wallsend Colliery. According to the mine plan, the Gretley mine was located 100m away from an old mine workings. However, in contrast, on the 13th of November 1996, during nightshift, the underground 50/51 panel workings mine was located approximately 7m from the old workings as opposed to 100m as indicated by the mine plan (Australian Mine Safety Journal, 2009: Seymour, C. 2009).

2.8.2. Inquiry/Inquest Findings Gretley Mine Disaster

The judge's major court findings on the Gretley disaster were that the mine plans used to locate the old mine from the current workings were incorrect and that mine management did not exercise due diligence in ensuring the accuracy of the plans in relation to the old mine workings. The judge asserted that the two mine managers and surveyor acted irresponsibly by not ensuring that the plans utilised were correct as they posed a risk of flooding the current mine. The assumption that the plans were correct was not reasonable according to the judge. The over-reliance on the faulty plans was a latent failure in the system that was awaiting a mine disaster. (Australian Mine Safety Journal, 2009; Hopkins, 2005).

The judge also noted that the risk of an inrush of water from the neighbouring mine was eminently known thereby the risk was reasonably foreseeable and measures could have been put in place to mitigate the risk. To this end, mine management failed to conduct a comprehensive risk assessment in mitigation of the risk associated with inrush flooding (Australian Mine Safety Journal; Hopkins, 2005).

During the inquiry conducted by the inspectorate, it was noted that three days prior to the accident, there was an abnormal water ingress at 50/51 panel workings, and this was documented on the shift overseers report at the end of the shift. This was a warning indicating that something was amiss, and this warranted an investigation. The Presiding Officer of the inquiry, as a major finding, argued that this was gross negligence, not to have acted when there was a warning (Hopkins, 2005: Seymour, 2009).

2.8.3. Penalties Meted Out at the Gretley Mine Disaster

The extent of the contravention was augmented by the fact that four employees lost their lives, and the matter was of 'public interest'. The case was in public interest as it attracted attention at the local and national scale. To ensure that there was a strong deterrent, the prosecution was handed to three defendants (i.e., two mine managers and a surveyor) and their entities. The penalties imposed by the judge at the Gretley Mine Disaster were fines. The Gretley operating and owning companies were fined $730,000 each. The appointed and relieving mine managers were both fined $30,000 and $42,000, respectively. While the surveyor was fined $30,000. Although an appeal was made, all charges were confirmed except that the surveyor was exonerated.

(Hopkins, 2005). Learnings from the Gretley Mine Disaster can be summarised as follows:

- **Mine plans must be verified** – old plans received, should always be audited to ensure reliability.
- **Continuous assessment is imperative** – with changing conditions at the mine, a risk assessment should have been conducted to assess to identify hazards, even those out of the norm.
- **The mining law held legal appointees responsible -** The company and the two managers were held liable for the negligence of the mining law for not verifying the mine plans.
- **The judgement was punitive** – Fines were issued to the company and two managers.
- **Successful prosecution** - was meted out by the Judge as the 2 Managers and the operating companies were fined.

2.9. Conclusion

The South African mining industry has a vast mineral endowment and most of the mines are underground operations. Health and safety in the industry remains a challenge with the zero harm target still yet to be achieved since the promulgation of the MHSA. There have been repeat accidents over the years with the major accident contributors being fall of ground and mine transportation. The MHSA provides for several enforcement measures to ensure compliance with health and safety.

While mine prosecution is at the centre of the enforcement process, it has been less explored in the South African mining industry. To date, there have not been any successful prosecution outcomes. This is linked to several factors including the poor quality of section 72 reports, lack of technical mining knowledge by the prosecution authority, limited involvement of the DMRE and shortages of inspectors. To this end, some industry stakeholders have called for the reinstatement of mining courts to improve the likelihood of successful mine prosecutions. There are mixed views on this recommendation and as such a combined approach comprising of advisory and punitive measures from the regulator is proposed to deter repeat incidents. The Gretley mine disaster which led to a successful mine prosecution provides a good example of

how prosecution can be meted out considering the roles and responsibilities of employers and employees, and requirements around risk assessments.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Introduction

This chapter discusses the research methodology undertaken for the study. The chapter elaborates on mixed-methods research that was adopted and, discusses how data was collected and analysed. Furthermore, the chapter highlights ethical considerations and the limitations of the study.

3.2. Research Methodology

Kothari (2004) alluded that research methodology involves a logical approach to how research problems are investigated and this is supported by criteria that inform selection of appropriate research techniques. Research methodology encompasses data collection and analysis of methods selected based on the objectives of the study.

Research methodology provides a systematic approach to addressing and finding solutions towards problem statement. It can be defined as the scientific study of the process followed when conducting research (Kothari, 2004). Irny and Rose (2005) described research methodology as encompassing the practical methods adopted in research which involves quantitative, qualitative and mixed methods, and includes theories that are underpinned by various paradigm models.

Coghlan and Brydon-Miller (2014) described quantitative research as involving strategies, systems and or assumptions embedded in numeric models. In other words, in quantitative research, statistical and numerical data is collected and analysed to interpret and/or predict patterns, trends and outcomes. Quantitative research employs a variety of methods, and these include the use of surveys and experiments.

On the other hand, qualitative research according to Delzin and Lincon (1994) is a multi-method which is informed by realistic events that occurred. The method adopts techniques such as case studies observations, interviews, and textual and visual material to provide comprehension of the events that took place. Tegan (2003) suggested that the qualitative research is more explorative as the participants provide more open-ended responses which are not controlled by the researcher. This means that the participants' responses cannot be anticipated nor predicted, making this process a less formal research approach. According to Allen (2017), the purpose of a

qualitative research approach is to produce information which can be understood in the context of social science. Social scientists are interested in the study of humanity in relation to events in the social construct. Hence qualitative research uses scientific review for data that can be measured and observed to respond to research questions in humanities.

A mixed methods approach was adopted for the research. The National Institute of Health described mixed method research as strategic in that it integrates qualitative and quantitative methods to achieve the desired outcomes (Harvard Catalyst, 2023). This method can simplify the complexity of the data collected which is to be analysed in an understandable format. The mixed method approach combines the strength of both qualitative and quantitative techniques and provides a concise process flow of the research.

3.3. Data Collection

Using the mixed methods approach, data was collected using interviews, surveys and document review. The interviews were administered using semi-structured questions (i.e., see Appendix A). Surveys were administered using structured and open-ended questions (i.e., see Appendix B). In addition, secondary data was collected through desktop research and data on OHS performance and mine prosecution were obtained from the Department of Mineral Resources and Energy.

Primary Data Collection

Primary data collection involves gathering information that has not been published. This is firsthand information which is often robust and hence makes the research process time consuming. There are different methods of collecting primary data and in this study, key informant interviews, and surveys were employed. Interviews are conducted in a way that data can be collected from individual responses in line with research objectives. Interviews are usually conducted through the use of questionnaires. This study utilised a semi-structured questionnaire to carry out the interviews. According to Bobby (2016), the quota method sample size of participants for qualitative data should be a minimum of 15 and a maximum of 30. While this is the sample size to consider, it is recommended that interviews are conducted until a saturation point is reached. The saturation point is described as a point in the data collection where no new issues or insights are shared, and data begin to repeat. As

such, the additional interviews conducted do not add any insights to the current picture. When saturation is reached, the sample size is considered to be sufficient to allow the researcher to draw meaningful analyses. A total of 9 interviews were conducted with representatives from the Department of Mineral Resources and Energy and National Prosecution Authority, employers, and organised labour. Table 3.1 shows the sample distribution across the participant groups. Purposive sampling was used as a sampling methodology where participants were selected based on their knowledge and experience of the aspects being investigated (Palinkas et al, 2015).

Table 3.1: Participant groups and sample sizes

Participant group	**Number of participants**
Department of Mineral Resources and Energy	3
National Prosecution Authority	1
Organised labour	3
Employers	2

Data for the study was also collected through surveys. A total of 44 surveys were completed. The survey was completed online by the participants. A purposive sampling technique was also used where the survey was disseminated to a group of stakeholders that are knowledgeable about the subject. Figure 3.1 shows the survey participants, and they are arranged according to the participant groups. As seen in the figure, of the total participants, 16 are employees, 14 are representatives of DMRE, 10 are employers, and 4 represent organised labour. In particular, employees, DMRE, employers, and organised labour formed 36.4%, 31.8%, 22.7% and 9.1% of the survey respectively.

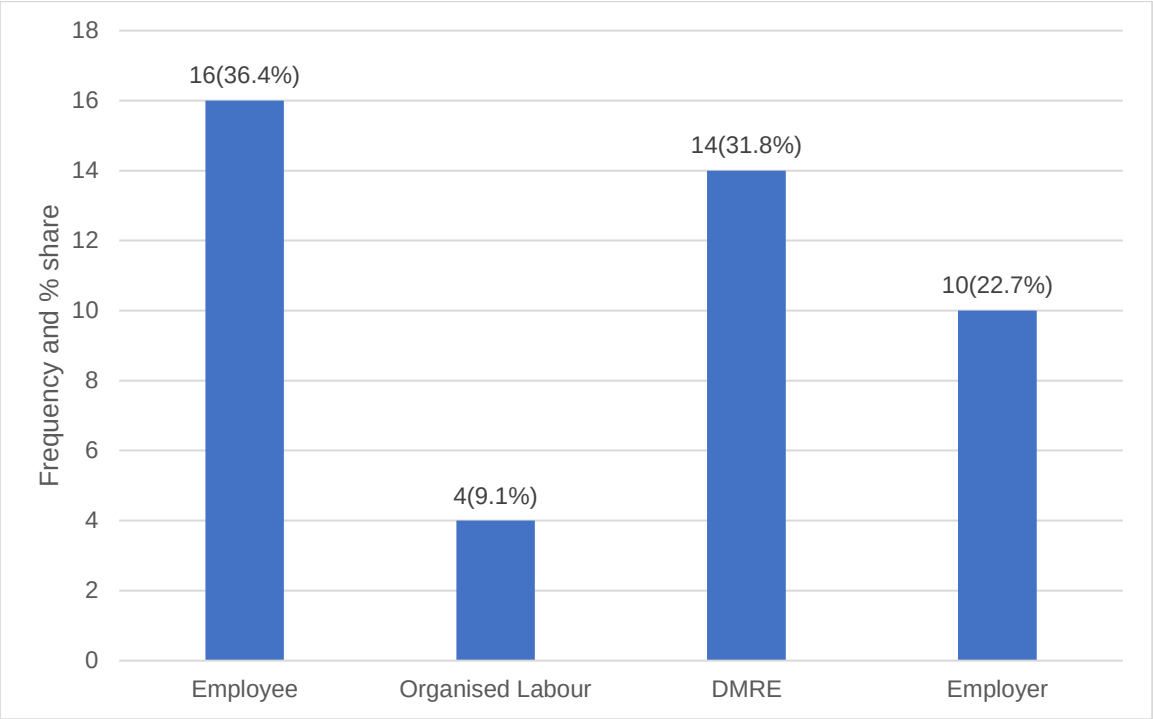


Figure 3.1: Survey Participants

Secondary Data Collection

Secondary data was collected from internet sources, articles, books, and other relevant sources. This method of data collection is less time consuming as the information is already available, organised and almost free of charge. However, some of the data may have copyright issues whilst some may be unreliable thereby affecting the reliability of the research (McCaston, 2005). To this end, it is important to extend the data collection to several sources to cross reference the data and improve data reliability.

The secondary data collection comprised a desktop review where a literature survey was conducted on aspects relevant to health and safety in the mining industry covering both the South African and global contexts. The data collection also involved gathering numeric data from the DMRE. This included collecting statistical data on OHS performance in the mining industry over a period of 5 years from 2016 to 2020. Quantitative data on mine inquiries and prosecutions were also collected from DMRE covering a period from 2016 to 2020. The difference in the study periods is a factor of the time lag between incidents taking place and inquiries taking place. The duration of mine prosecution cases in the country after a fatal accident can vary significantly based on several factors, including the complexity of the case, the thoroughness of the

investigation, and the legal processes involved. Figure 3.2 illustrates the prosecution process and lag time. The stages of the process are discussed below.

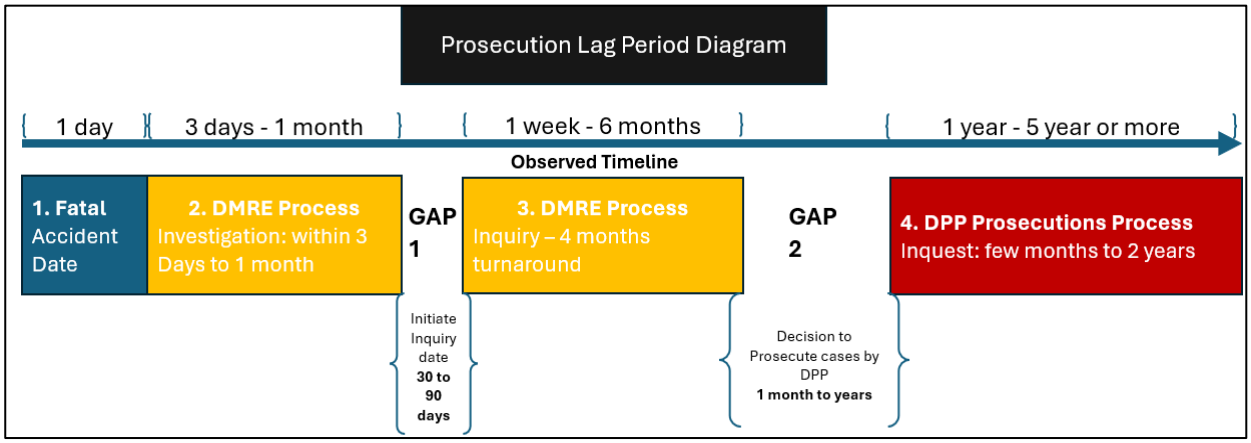


Figure 3.2: Prosecution Lag Period Diagram

Investigation - Following an incident resulting in a fatality, the Mine Health and Safety Inspectorate (MHSI) will conduct a thorough investigation to ascertain the root cause of the incident and propose preventive measures. This process may span several months.

Inquiry - Upon completion of the investigation, the findings are duly submitted to the South African Police Service (SAPS) and the Director of Public Prosecutions (DPP). The decision to proceed with prosecution and subsequent trial preparations may further extend the timeline taking several months.

Prosecution - The duration of court proceedings can vary significantly. Straightforward cases with clear facts may be resolved in a few months, while others involving intricate legal arguments or appeals can span years.

Prosecution Lag Time - A notable example is the Lily Mine incident of 2016, which has been embroiled in protracted legal battles and investigations, underscoring the potential for cases to extend over multiple years. While some cases may be concluded within a year, others may require several years to reach a resolution, contingent upon the specific circumstances and legal complexities involved.

These variations in the timelines bring time differences between the dates of fatal incidents and the period where the prosecuting authority would issue an outcome. For instance, a fatal accident that occurred in 2020 may have a prosecution outcome that extends beyond 2020, even reaching 2022 and beyond. The practical example cited is

the Lily Gold Mine prosecution lag that is still pending even beyond 2020. These variations in timelines create discrepancies between the dates of fatal incidents and the periods when the prosecuting authority issues outcomes. For example, a fatal accident that occurred in 2020 might have a prosecution outcome extending into 2022 or beyond. A practical example is the Lily Gold Mine case, where the prosecution is still pending even after 2020. Consequently, it is acknowledged that fatal accidents occurring in 2020 or within the study period (i.e., 2016 to 2020) may still be under review by the prosecuting authority with the outcome yet to be issued.

3.4. Data Analysis

Data analysis comprises methods used to interpret the data collected in line with research objectives. The data on mine accidents and fatalities as well as mine inquiries and prosecution were captured in the form of numerical data and analysed into patterns and trends over the study period. The data collected from the surveys was also analysed quantitatively to draw out trends and patterns. The interviews were transcribed and analysed using thematic analysis. This qualitative method identifies and presents recurring themes or patterns in data. It involves reading and extracting meaning and themes in the data in line with the objectives of the study (Energy Research and Social Science, 2023)

3.5. Research Validity and Reliability

Research validity and reliability refer to the integrity and credibility of research findings. According to Rose and Johnson (2020), to ensure research credibility, an ethical process must be followed which includes well-thought research questionnaires, meticulous data collection and analysis through logical observation, evidence-based findings.

Research validity deals with the credibility of data collection for a specific investigation (Gauri & Grondaugh, 2005). Abowitz and Toole (2010) emphasized that validity measures the research results and provides an evaluation process that can be used to check the precision of the results. On the other hand, reliability determines the credibility of the research results (Taherdoost, 2017). Research reliability also ensures that the research results can be reproduced when repeated with the same research assumptions and/or conditions (Abowitz & Toole, 2010).

Several measures can be used to ensure that research is reliable and validated, in this study, triangulation was utilised. Triangulation is a method that utilises a variety of data sources and multiple research methods to ensure credible research (Patton, 1999). Triangulation allows research results to be verified, and any discrepancies rectified by other data sources (UNAID, n.d). The research utilised various data sources to increase data validity and reliability thereby mitigating against misinformation. Secondary data was collected through various sources. Primary data was collected through the use of surveys and key informant interviews. These were completed by different participant groups (i.e., DMRE, NPA, organised labour, and employers). The survey involved responding to the same questions and this allowed the researcher to draw similarities and differences in the responses and to cross-reference these with the secondary data obtained through literature.

3.6. Ethical Considerations

Ethical clearance was obtained from the University of Witwatersrand before the primary data collection took place. The protocol number of the ethical clearance is EMINN/2020/03. Formal consent was acquired from participants before any interview and survey was conducted. No personal information and/or identifying information was collected. The data that was gathered was stored in a secured password protected laptop. The data collected was used for research purposes and where required, pseudo-names and general descriptors were used to protect the identity of the participants.

3.7. Research Limitations and Challenges

Several participants were reluctant to participate in the study, particularly from the NPA. Only one participant from the NPA took part in the interview. Some participants who participated in the interview without mine prosecution knowledge and experience and as a result, their interviews were discarded due to their limited contribution to the research. The timeline for the quantitative data was restricted between 2016 to 2020 due to the availability of data. Mine inquiries and prosecution data were available in some provinces, namely, Gauteng, Northern Cape, North West

3.8. Conclusion

The research methodology is a systematic and logical process that uses a variety of methods to conduct research. These methods enable the collection of both primary and secondary data. A mixed-method approach was used in the study. This was in considering the strength of both qualitative and quantitative techniques. The data was collected through literature review, document review, interviews, and surveys. The research was conducted in line with ethical requirements ensuring that participants' anonymity was preserved during the study and in the report. Research credibility and validity were maintained through triangulation where data was collected through various sources and using multiple methods.

CHAPTER FOUR: RESULTS AND ANALYSIS

4.1. Introduction

This chapter presents the results in alignment with the study's objectives. It provides an analysis of OHS performance and highlights areas of concern. Additionally, prosecution data is analysed to understand the status and factors affecting mine prosecution outcomes. The chapter concludes with an overall discussion that cross-references the study's findings with key aspects from the literature.

4.2. Review of OHS Performance and Areas of Concern

The South African mining industry safety performance for five years (2016-2020) is presented. The data is presented according to the type of accidents and the number of injuries and fatalities.

4.2.1. Mine Health and Safety Performance 2016

Table 4.1 shows mine safety performance for 2016. As seen in the table, the total number of accidents reported was 2 899 and the number of injuries was 2 848. The total number of fatalities was 73 during this period. The biggest contributors were Falls of ground (FOG), Transport and Mining (TMM) and General at 33%, 32% and 22%, respectively.

Table 4.1: Mines Safety Performance 2016

All Mines Injuries and Fatalities per Classification 2016				
Classification	**Total Injured**	**Total Disabled**	**Total Killed**	**Total Accidents**
FALL OF GROUND/rockfall	471	0	24	466
MACHINERY	211	0	4	221
TRANSPORTATION AND MINING	471	0	23	494
GENERAL	1 530	0	16	1 549
CONVEYANCE ACCIDENTS (SHAFT/WINZE)	40	0	2	42
ELECTRICITY (Not causing fire)	15	0	1	15
FIRES	6	0	0	6
EXPLOSIVES	7	0	1	7
SUBSIDENCE OR CAVING	1	0	0	1
HEAT SICKNESS	1	0	0	1
DIVING SICKNESS	2	0	0	2
OCCUPATIONAL DISEASES	0	0	1	1
MISCELLANEOUS (specify)	93	0	1	94
TOTAL	2 848	0	73	2 899

Source: (Mine Health and Safety Inspectorate, 2020a)

4.2.2. Mine Health and Safety Performance 2017

Table 4.2 shows the safety performance for the year 2017 and during this period, the total number of accidents reported was 2 697. In the same year, there were 2 669 injuries and 90 fatalities, and only 1 employee was reported disabled. The accident agencies show that FOG contributed 37% followed by TMM at 33%.

The gold sector had the worst performance with 1 032 injuries and 40 fatalities in 2017 compared to other sectors of mining (Mine Health and Safety Inspectorate, 2020). There was a mine disaster in July 2017 where 4 employees were fatally injured as a result of a seismic fall of ground (Mine Health and Safety Inspectorate, 2020a).

Table 4.2: Mines Safety Performance 2017

All Mines Injuries and Fatalities per Classification 2017				
Classification	**Total Injured**	**Total Disabled**	**Total Killed**	**Total Accidents**
FALL OF GROUND/rockfall	444	1	33	443
MACHINERY	196	0	4	201
TRANSPORTATION AND MINING	487	0	30	511
GENERAL	1 421	0	19	1 419
CONVEYANCE ACCIDENTS (SHAFT/WINZE)	27	0	0	27
ELECTRICITY (Not causing fire)	12	0	0	11
FIRES	8	0	0	8
EXPLOSIVES	4	0	2	5
SUBSIDENCE OR CAVING	1	0	0	1
HEAT SICKNESS	1	0	0	1
MISCELLANEOUS (specify)	68	0	2	70
TOTAL	2 669	1	90	2 697

Source: (Mine Health and Safety Inspectorate, 2020a)

4.2.3. Mine Health and Safety Performance 2018

Table 4.3 shows the mine performance for the year 2018. There were a total of 2 440 accidents that were reported, and the number of total injuries was 2 447 which exceeded the number of accidents. The number of fatalities recorded was 81 and 4 employees were reported disabled.

Table 4.3: Mines Safety Performance 2018

All Mines Injuries and Fatalities per Classification 2018				
Classification	**Total Injured**	**Total Disabled**	**Total Killed**	**Total Accidents**
FALL OF GROUND/rockfall	408	0	22	401
MACHINERY	170	1	3	174
TRANSPORTATION AND MINING	394	1	16	407
GENERAL	1 357	2	16	1 363
CONVEYANCE ACCIDENTS (SHAFT/WINZE)	24	0	0	22
ELECTRICITY (Not causing fire)	14	0	2	16
FIRES	21	0	6	7
EXPLOSIVES	14	0	1	11
SUBSIDENCE OR CAVING	1	0	0	1
HEAT SICKNESS	3	0	6	5
OCCUPATIONAL DISEASES	1	0	0	1
MISCELLANEOUS (specify)	40	0	9	32
TOTAL	2 447	4	81	2 440

Source: (Mine Health and Safety Inspectorate, 2020a)

In 2018, the major fatalities agencies were FOG, TMM and General at 27%, 20% and 20%, respectively. Fires and heat sickness were reported to have contributed 7% each toward the fatalities in 2018. A mine disaster occurred at Phalaborwa Mine in Limpopo province where 6 employees were killed in a single accident involving a conveyor belt catching fire (Mine Health and Safety Inspectorate, 2020).

4.2.4. Mine Health and Safety Performance 2019

Table 4.4 shows the safety performances for 2019 where the total number of accidents that occurred was 2 379 and total injuries recorded was 2 440. Fatalities reported were 51 and 3 employees disabled. The largest contributors to the deaths were FOG, TMM and General at 39%, 33% and 12% respectively.

Table 4.4: Mines Safety Performance 2019

All Mines Injuries and Fatalities per Classification 2019				
Classification	**Total Injured**	**Total Disabled**	**Total Killed**	**Total Accidents**
FALL OF GROUND/rockfall	384	1	20	369
MACHINERY	150	0	1	151
TRANSPORTATION AND MINING	437	1	17	452
GENERAL	1 373	1	6	1 319
CONVEYANCE ACCIDENTS (SHAFT/WINZE)	41	0	1	31
ELECTRICITY (Not causing fire)	16	0	3	19
FIRES	2	0	0	2
EXPLOSIVES	10	0	2	9
HEAT SICKNESS	4	0	0	4
OCCUPATIONAL DISEASES	2	0	0	2
MISCELLANEOUS (specify)	21	0	1	21
TOTAL	2 440	3	51	2 379

(Source: Mine Health and Safety Inspectorate, 2020a)

The platinum sector was leading with fatalities reaching 20 followed by the gold sector with 18 fatalities (Mine Health and Safety Inspectorate, 2020a). During this period, the mining industry recorded its lowest number of fatalities since 1994, with a total of 51 deaths. While this is the case, in the same year, a mine disaster occurred which resulted in 4 employees being fatally injured as a result of a seismic related FOG (Geoengineer, 2019).

4.2.5. Mine Health and Safety Performance 2020

Table 4.5 shows the 2020 safety performance, where the total number of accidents reported was 1 774 and the total injuries were 1 813. The fatalities recorded were 59 with 3 employees reported as disabled following the incidents. FOG contributed 39% to the fatalities and General accidents contributed 23%. The coal and platinum sectors reported 9 fatalities each whilst 26 employees were fatally injured in the gold sector.

Table 4.5: Safety Performance 2020

All Mines Injuries and Fatalities per Classification 2020				
Classification	**Total Injured**	**Total Disabled**	**Total Killed**	**Total Accidents**
FALL OF GROUND/rockfall	309	0	22	282
MACHINERY	121	1	4	126
TRANSPORTATION AND MINING	325	0	8	324
GENERAL	988	1	14	970
CONVEYANCE ACCIDENTS (SHAFT/WINZE)	24	0	3	24
ELECTRICITY (Not causing fire)	12	0	1	12
FIRES	0	0	3	1
EXPLOSIVES	3	0	1	4
HEAT SICKNESS	7	0	1	8
MISCELLANEOUS (specify)	24	0	2	23
TOTAL	1 813	2	59	1 774

(Source: Mine Health and Safety Inspectorate, 2020a)

4.2.6. Mine Health and Safety Performance Trends 2016-2020

The section discusses the trends in health and safety performance for the period 2016-2020. The results are analysed to identify areas of concern that need to be addressed to improve health and safety in the mining industry.

4.2.6.1. Entire Mining Industry Safety Trends

Figure 4.1 presents the overall safety performance for the period between 2016 to 2020, for injuries and accidents. As seen in the figure, a downward trend can be picked up in both the number of injuries and accidents during the study period. There was a significant decline in the total accidents between 2019 and 2020. There was a significant decline in the total accidents between 2019 and 2020 as shown in Figure 4.1. In 2020, there was a state of emergency where some of the mines were not operational due to COVID-19 pandemic and hence improved safety performance can be linked to that (Cavvadas and Searle, 2020)

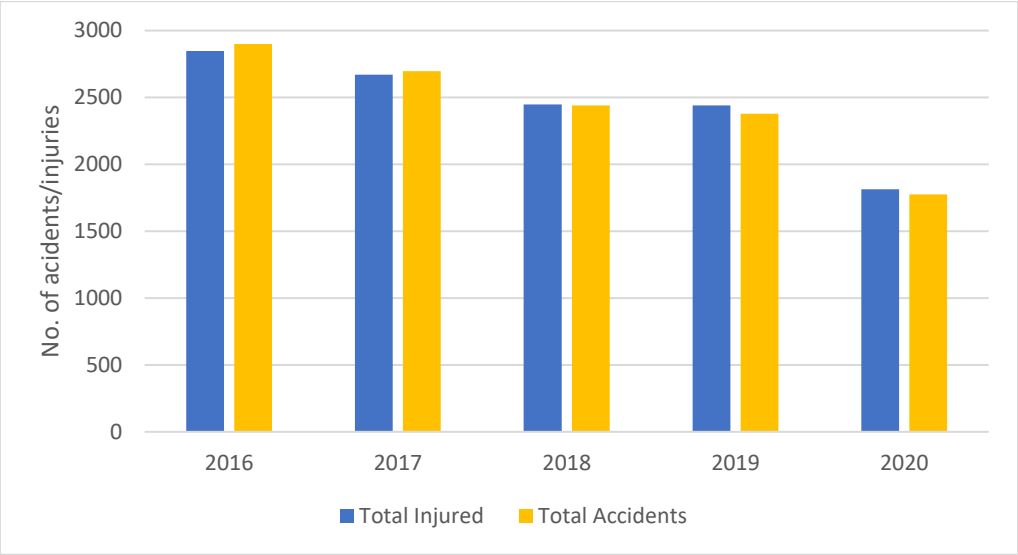


Figure 4.1: Total Injured and Accidents at All Mines (2016-2020)

Figure 4.2 shows the safety performance for the period between 2016 and 2020, for fatalities and disabled employees. As depicted in the figure, from 2016 to 2017, there was an increase in the number of fatalities. Overall, total fatalities declined from 73 in 2016 to 59 in 2020. While low, the number of employees disabled after a mine accident increased between 2017 and 2020.

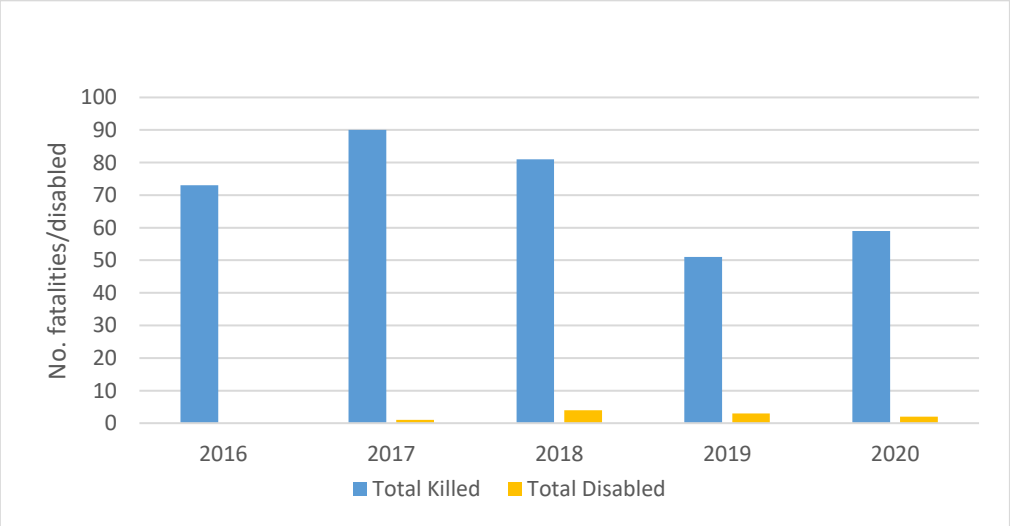


Figure 4.2: Fatalities and Disabled at All Mines (2016-2020)

4.2.6.2. Gold Sector Safety Trends

As noted, the gold sector operates in deep to ultra deep mines where there is a risk of seismicity and rockfall. More so, the operations are labour intensive due to the continued use of conventional mining methods. Figure 4.3 presents the gold sector safety performance between 2016 to 2020 for injuries and accidents. While the number of accidents and resulting injuries remains high, there has been an improvement with total accidents and injuries declining during the study period.

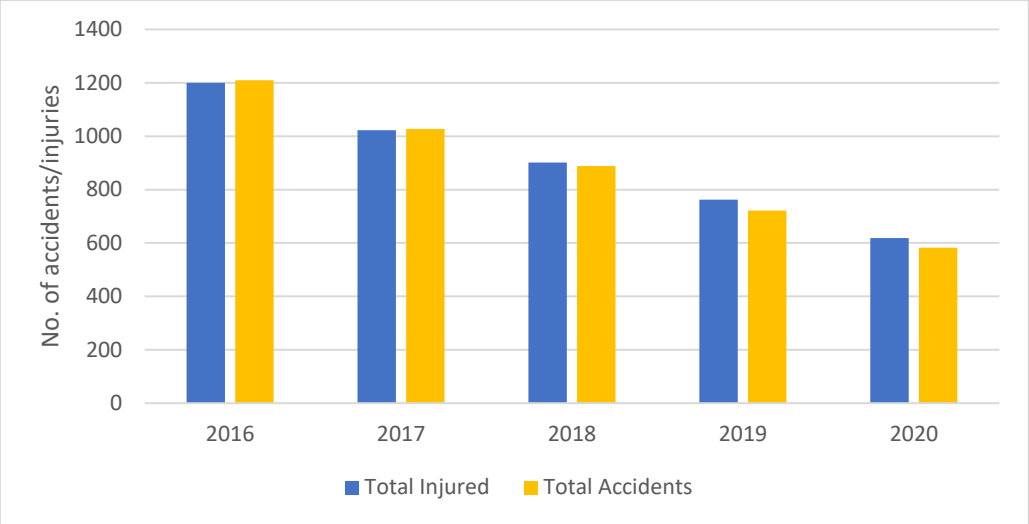


Figure 4.3: Total Injured and Accidents at Gold Mines

Figure 4.4 shows the overall safety performance for the gold sector capturing the number of fatalities and disabled employees. As seen in the figure, there was an increase in the number of fatalities between 2016 and 2017. This was followed by an improvement between 2018 and 2019. A regression was recorded in 2020 with fatalities increasing from 18 in 2019 to 26 in 2020. Another concern in the gold sector is that the number of employees disabled increased from 2016 to 2020.

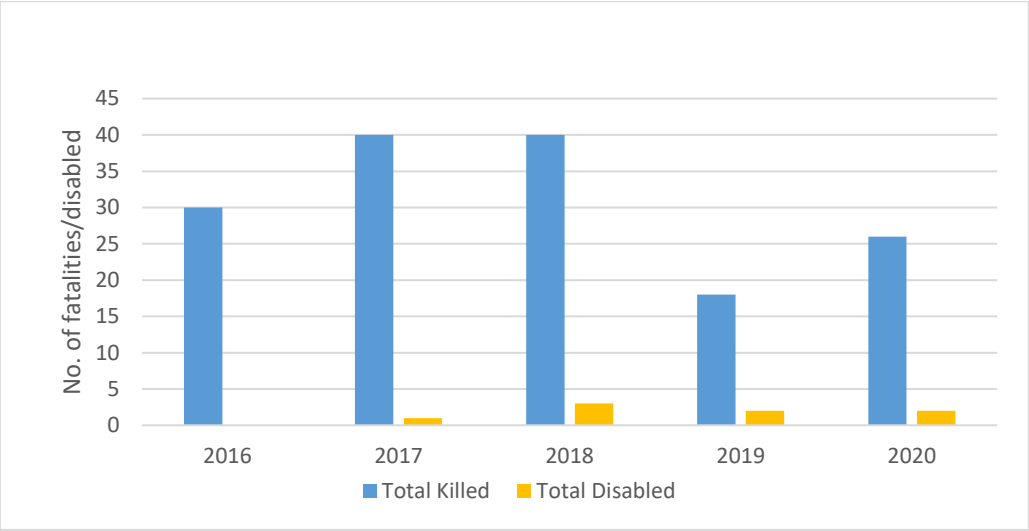


Figure 4.4: Disabled and Fatalities at Gold Mines (2016-2020)

4.2.6.3. Platinum Sector Safety Trends

While most platinum mines are at lesser depths compared to gold operations, mining also takes place underground. Compared to gold mining operations, most platinum mines are mechanised. Figure 4.5 shows the platinum sector safety performance for the period 2016 to 2020. Overall, the accidents and total injuries reported in the platinum sector have declined between 2016 and 2020.

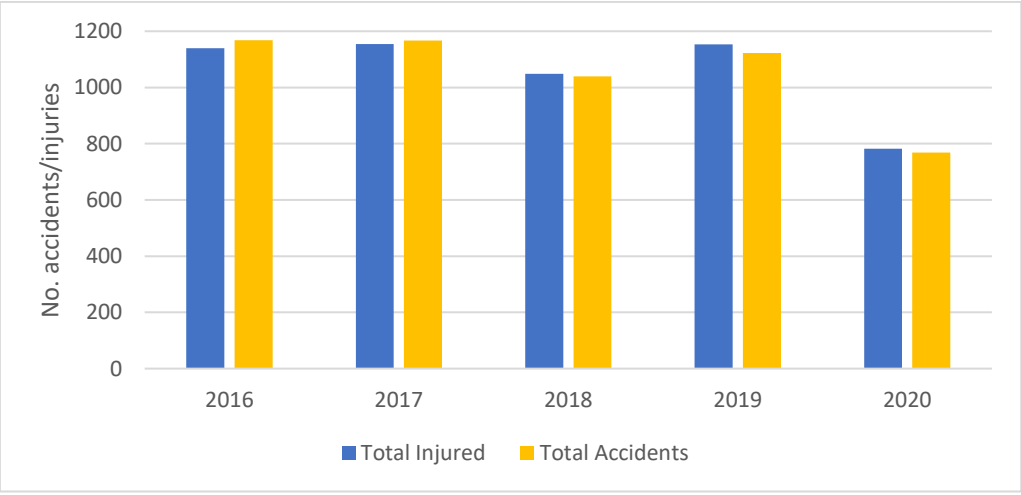


Figure 4.5: Injured and Accidents at Platinum Mines (2016-2020)

Figure 4.6 depicts the platinum sector safety performance with regard to fatalities and disabled employees. The number of fatalities recorded in the platinum sector shows a decline between 2016 and 2018 with a significant improvement recorded in 2018. This was followed by an increase in 2019 and a slight decrease in 2020. The number of employees who were that were disabled after a mine accident was only recorded in 2019.

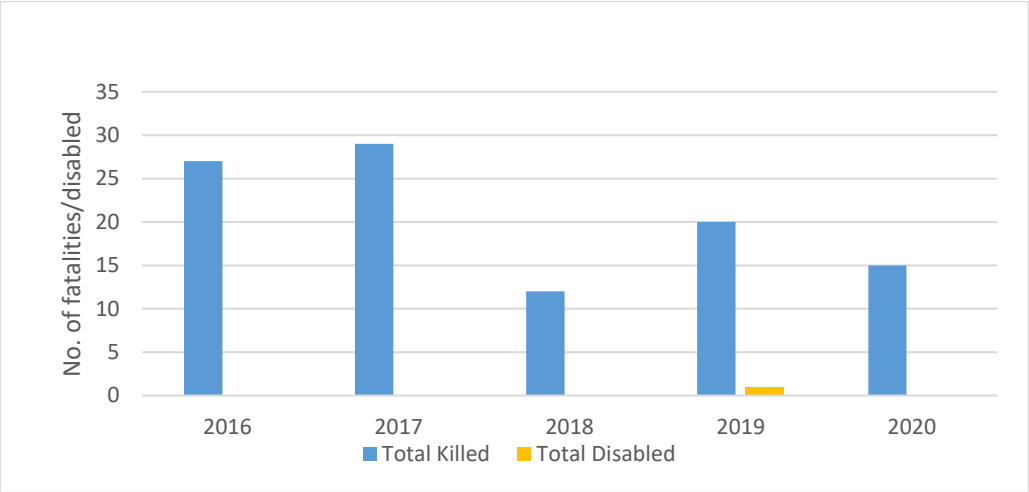


Figure 4.6: Disabled and Fatalities at Platinum Mines (2016-2020)

4.2.6.4. Coal Sector Safety Trends

Coal mines in the country are generally mined through open cast and shallow underground operations utilising bord and pillar or longwall mining methods. Figure 4.7 presents coal sector safety performance with regards to injuries and accidents. The number of accidents and injuries in the coal sector shows a regression between 2016 to 2018 and an improvement from 2018 to 2020.

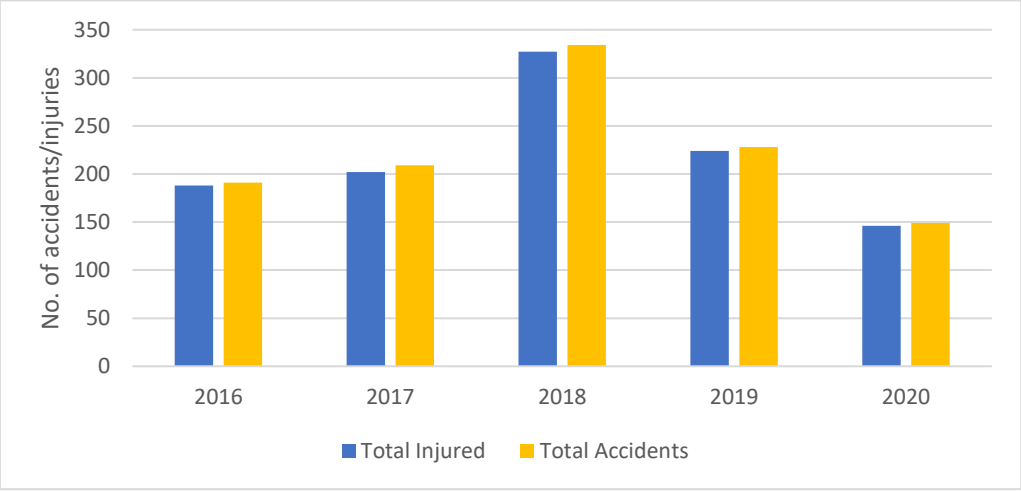


Figure 4.7: Injured and Accidents at Coal Mines (2016-2020)

Figure 4.8 shows coal safety performance with regard to fatalities and disabled employees. In the period from 2016 to 2017, there was a slight regression followed by significant improvement in 2018. Overall, a downward trend in the number of fatalities is recorded during the study period. Only a single case of a disabled employee was recorded in 2018.

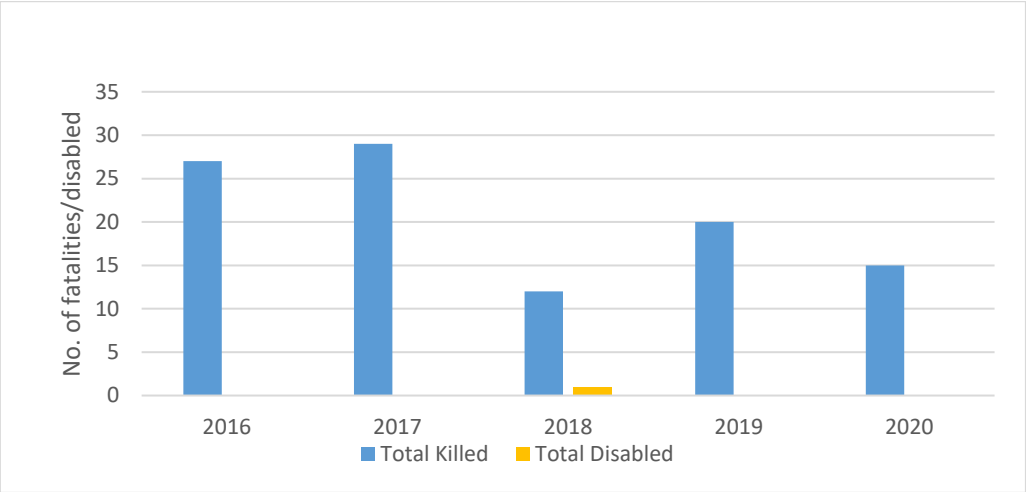


Figure 4.8: Fatalities and Disabled at Coal Mines (2016-2020)

4.2.6.5. Other Mines Safety Trends

Other mines include commodities such as aggregate material, diamond, heavy mineral sands, iron ore etc. The mining operations range from surface to underground mechanised mining methods. Figure 4.9 illustrates the safety performance of the other mines with regard to injuries and accidents. It is observed that there is a fluctuation in terms of reported accidents and injuries during the study period and hence there is no significant improvement.

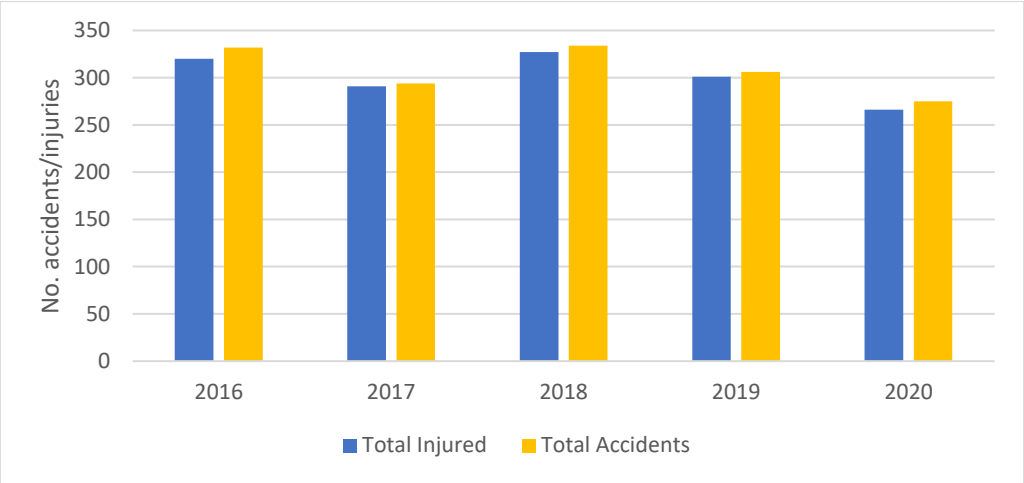


Figure 4.9: Injured and Accidents at Other Mines (2016-2020)

Figure 4.10 presents the safety performance of other mines for fatalities and disabled employees. The trend shows a regression between 2016 and 2018 and an improvement in 2019. There was a single case of a disabled employee reported in 2018 for the study period.

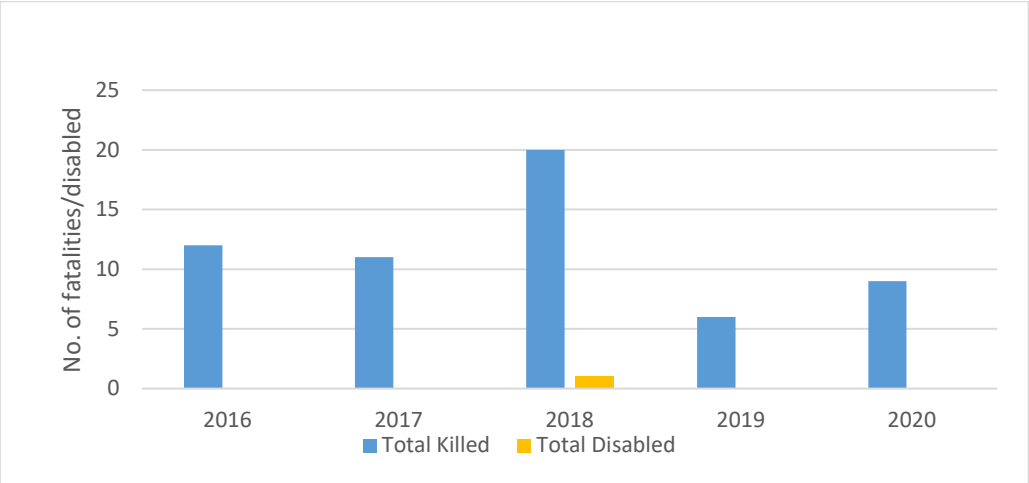


Figure 4.10: Disabled and Fatalities at Other Mines (2016-2020)

4.2.7. Accident Type (Agency) Trends

Figure 4.11 below illustrates the mining industry's major fatality agencies over the period 2016 to 2020. The trend demonstrates that there have been repeat accidents in the mining industry. The major causes of fatal accidents are FOG, General, TMM, Machinery and Fires. These are discussed below.

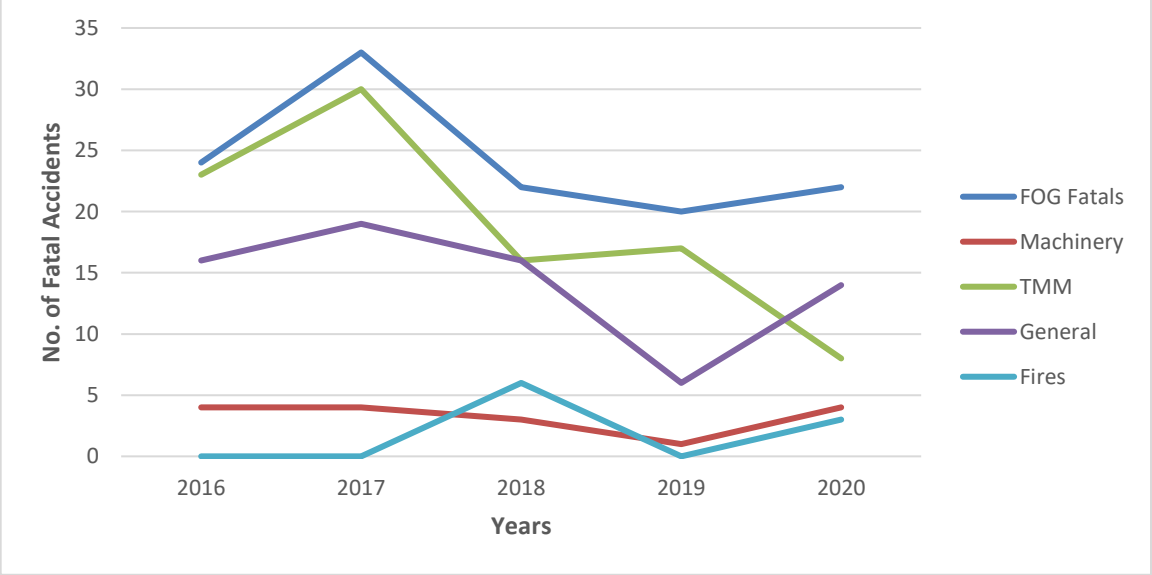


Figure 4.11 Mining Industry Fatality Trends per Agency (2016-2020)

Falls of Ground (FOG)

During the study period, FOG resulted in the highest number of accidents. Between 2016 and 2019, FOG accidents have remained dominantly high although there has been a slight decrease over this period. When FOG accident occurs, at least 1 person loses their life. For example, the Lilly Gold Mine incident claimed three lives when a

pillar collapsed on the 5th of February 2016, and unfortunately, to date, the bodies of the deceased miners have not been recovered (DMR Rep1, interview, 12 March 2022). The spike seen in 2017 resulted from the Tau Lekoa Mine Disaster where 4 employees passed away due a seismic related FOG. Since 2017, the number of FOG fatalities has declined, however remains high compared with other agencies.

Trackless Mobile Machinery (TMM)

The TMM agency has shown a spike in 2017, and this increase is attributed to accidents related to locomotives and mechanised mining. There was a small regression trend between 2018 and 2019. A key DMRE informant mentioned that with the introduction of an automatic retard system in the regulations, TMM safety is expected to improve (DMRE Rep, interview, 16 March 2021).

General

General type of accidents refers to fell-in, crushed between, slip and falls. Fatal accidents falling under the general have shown no improvement between 2016 and 2018. Although there was a dip in 2019, the total accidents did increase and were higher than accidents caused by TMM in 2020. This regression in the health and safety accidents caused by general activities is alarming. Accidents reported under fatal general are more often than others preventable. For example, on the 9th of December 2020, a Rock Drill Operator fell into a gulley and was fatally injured. From the investigation outcomes, the accident could have been prevented had the operator utilised that stepladder (MHSI. 2022).

Machinery

Machinery fatal accidents have been relatively flat from 2016 to 2019. Overall, the trend shows no improvement even though the number of accidents is relatively low.

Fires

Fire incidents are more catastrophic in nature because of the number of people that can be affected in the event of a fire. In 2009, there was a fire incident at Doornkop Mine that resulted in 9 employees succumbing to smoke and heat from the fire. In 2014, another fire took place at Doornkoop, and 9 trapped employees were rescued successfully. As shown in Figure 4.11, there was a peak in fatalities resulting from fire accidents in 2018 and was because of the Phalaborwa Mine conveyor belt fire (Ngwenya, 2018).

Figure 4.12 depicts fatal accident frequencies (number of accidents that occur) per month for the period 2016 to 2020. The January and December months have fewer fatalities. This is attributed to the festive season where most mines are closed for the period to resume full production in January month. The month of April also shows a decline in the number of fatalities which may be linked to the Easter holidays where some mines are working on reduced capacities. The months with the highest number of accidents are June to October and this is known as a silly season in the mining industry. A silly season can be referred to as a season where employees attend social events in summertime and may tend to overindulge in alcohol and sleep late. As a result, employees would be fatigued going to work and this poses a risk to OHS.

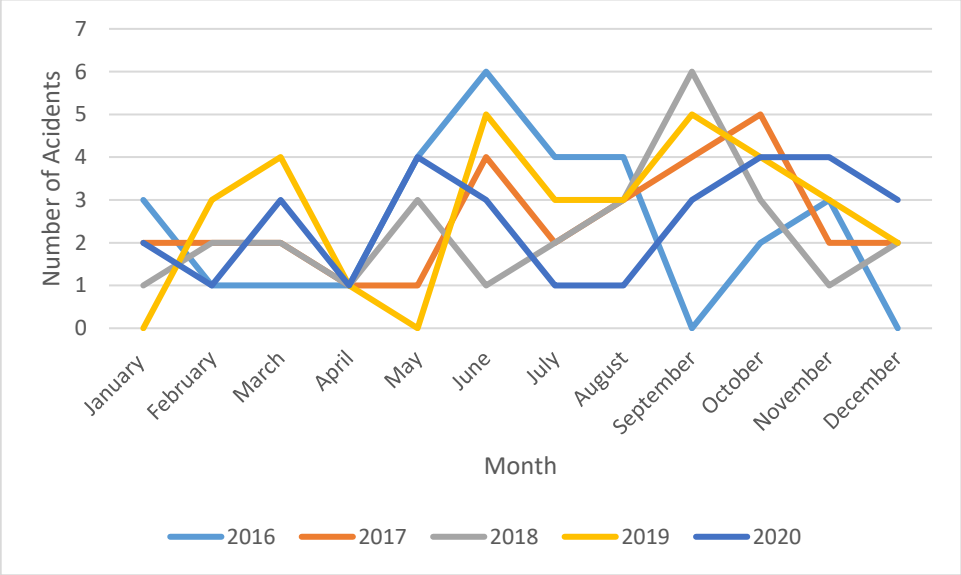


Figure 4.12 Accident Frequency for All Regions (2016-2020)

While there is a decline in the total number of fatalities across different agencies, zero harm is yet to be achieved. Instead, it is seen from the trends that accidents caused by FOG, TMM, Machinery and Fires have been re-occurring during the study period. This is concerning given the number of injuries and fatalities that have been reported.

4.3. Analysis of Inquiries and Prosecution Outcomes

Another objective of the study was to obtain insights into prosecution rates from fatal accidents occurring in the mining industry as required in Section 65 of the MHSA. This section provides an analysis of inquiries held and outcomes from the North West (Klerksdorp and Rustenburg), Northern Cape, Limpopo and Mpumalanga provinces.

4.3.1. North West: Klerksdorp – Prosecution Status (2016-2020)

Figure 4.13 shows the number of inquiries held and compared with recommended prosecution in the Klerksdorp region between 2016 and 2020. The total number of inquiries held was 20 over the study period and 14 prosecutions were recommended. The number of inquiries held, and recommended prosecutions increased from 2016 to 2018 and decreased in 2019. Despite this, there were no successful prosecutions during the study period. However, it is noted that while there is no record of prosecutions, some cases may still be under review by the prosecution authority, with outcomes yet to be issued.

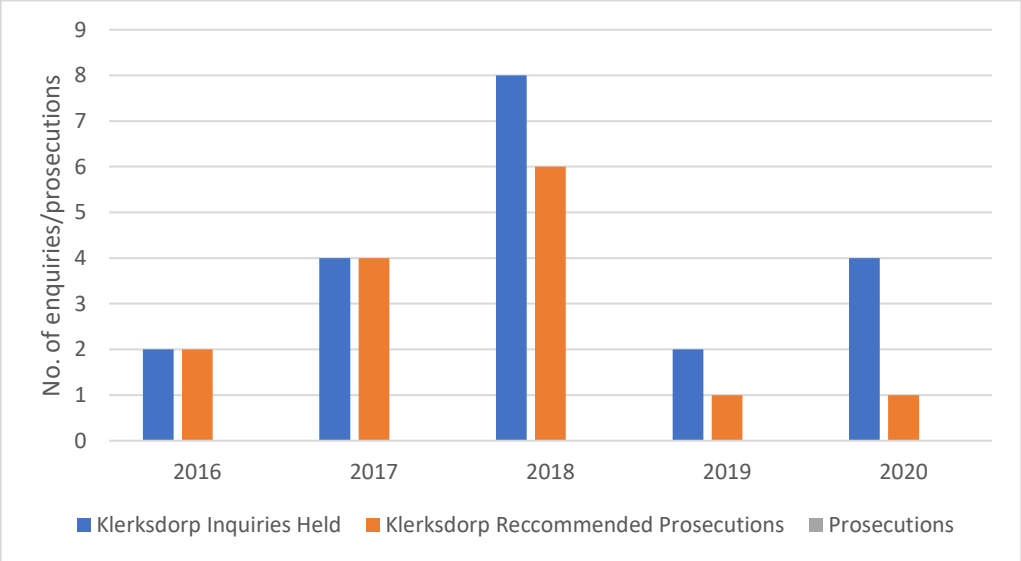


Figure 4.13 Inquiries Held vs Recommended Prosecutions vs Successful Prosecutions Klerksdorp (2016-2020)

4.3.2. North West: Rustenburg– Prosecution Status (2016-2020)

Figure 4.14 presents the number of inquiries held versus recommended prosecutions in Rustenburg. The total number of inquiries held was 94 with 36 recommended prosecutions during the period 2016 to 2020. Between 2016 and 2017, the inquiries

held increased and declined in 2018. Overall, there was a decline in the number of enquiries held during the study period. The recommended prosecutions are lower compared to the number of inquiries held for the entire study period. The number of recommended prosecutions declined from 2017 with only 3 recorded in 2020. As in the case in Klerksdorp, the number of successful prosecutions was zero during the study period.

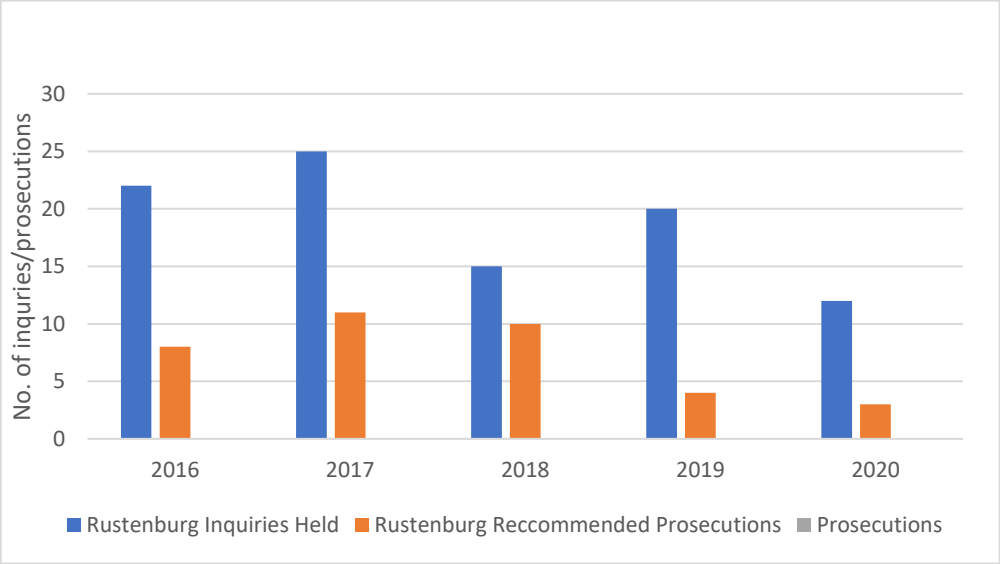


Figure 4.14 Inquiries Held vs Recommended Prosecutions vs Successful Prosecutions Rustenburg (2016-2020)

4.3.3. Northern Cape – Prosecution Status (2016-2020)

The inquiries held compared with prosecution status in the Northern Cape are presented in Figure 4.15. The were a total of 14 inquiries held compared with 4 recommended prosecutions and prosecution meted out was zero during the study period. As seen in the figure, the number of inquiries held peaked in 2016 and started declining towards 2020. In 2019 and 2020, there were no recommended prosecutions from the inquiries held.

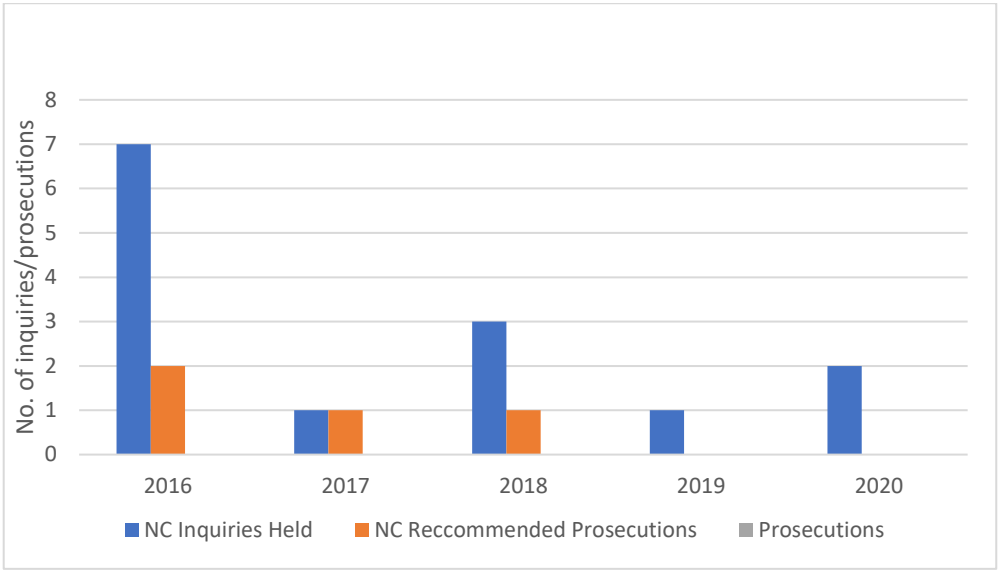


Figure 4.15 Inquiries Held vs Recommended Prosecutions vs Successful Prosecutions Northern Cape (2016-2020)

4.3.4. Limpopo Prosecution Status (2016-2020)

Figure 4.16 shows the number of inquiries versus the prosecution status for the Limpopo province for the period 2016 to 2020. There was a total of 11 inquiries held with 5 recommended prosecutions during the study period. In 2016, there were no inquiries held due to zero fatalities in the province (Mine Health and Safety Inspectorate, 2020a). As seen in the figure, a considerable increase in the number of inquiries was recorded in 2020. The number of successful prosecutions remained at zero for the period between 2016 to 2020.

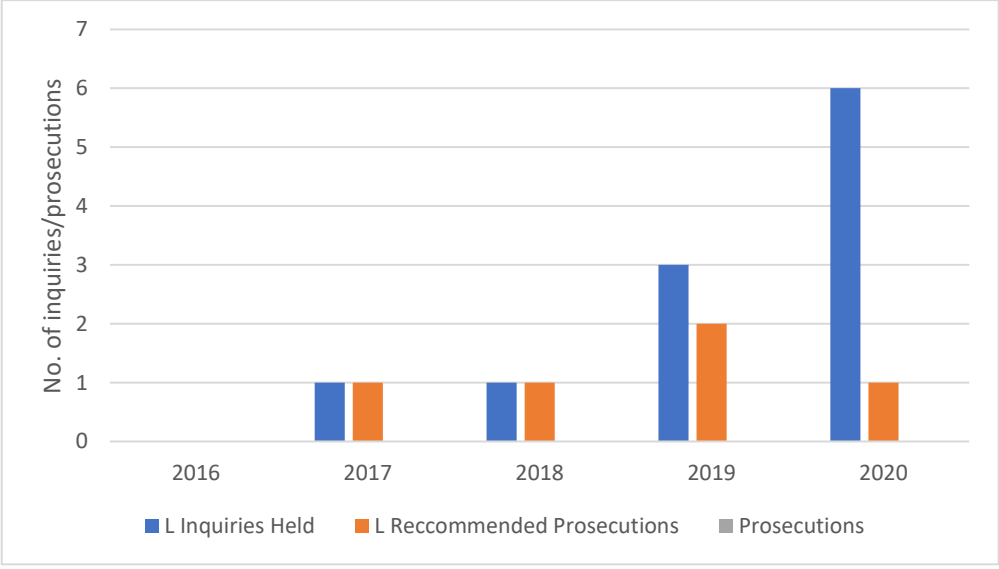


Figure 4.16 Inquiries Held vs Recommended Prosecutions vs Successful Prosecutions Limpopo (2016-2020)

4.3.5. Mpumalanga Prosecution Status (2016-2022)

Figure 4.17 presents inquiries held versus the prosecution status in Mpumalanga province for the period 2016 to 2020. The total number of inquiries held was 17 with 2 recommended prosecutions during the study period. In 2016, there were no inquiries recorded. From the inquiries held in 2017 and 2018, there were no recommended prosecutions. More so, the were no prosecutions meted out for the study period.

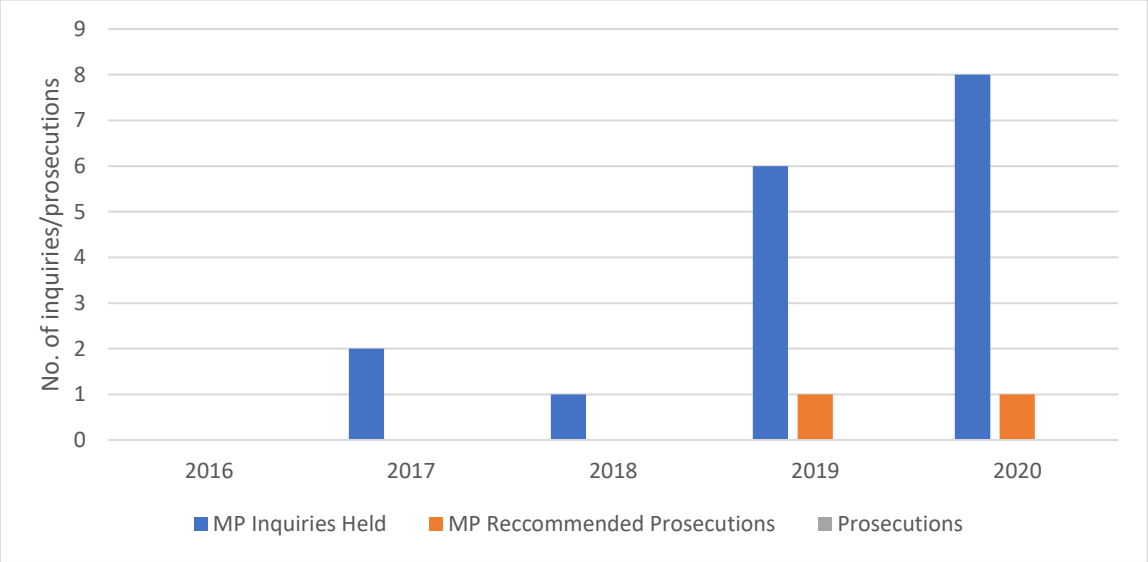


Figure 4.17 Inquiries Held vs Recommended Prosecutions vs Successful Prosecutions Mpumalanga (2016-2020)

For the five regions, there were no prosecutions meted out from the inquiries held. Rustenburg had the highest number of inquiries held at 96 compared to other regions due to the number of fatalities in the region. Klerksdorp region had the highest number of recommended prosecutions for the study period with a recommended prosecution rate of 70% followed by Limpopo at 45% of the inquiries held.

Although all fatalities require that inquiries be held according to the MHSA, the initiation and completion of inquiries differ. It is critical to note that some inquiries were not held or completed in the same year as the fatality that occurred. This means that some inquiries would take a longer period to be completed (Mine Health and Safety Inspectorate, 2020). To this effect, the inquiries held during the study period cannot be directly linked to the number of fatalities that occurred within the same period. Additionally, the duration of the prosecution process conducted by the NPA can vary from several months to years. Therefore, as mentioned in the methodology chapter,

the absence of successful prosecutions during the study period does not imply that all prosecution cases have been closed. The Lily Gold mine disaster was used as an example where the accident occurred on the 5th of February 2016, and at the end of 2020, the prosecution process is yet to be concluded. According to Ngobeni (2021), the prosecution process was postponed several times and only commenced in 2021 due to a lack of expertise in the geotechnical aspects of mining (Ngobeni, 2021). The outcome was still pending in 2022.

4.3.6. Fatal Inquiry Type Held (F- Single & K – Multiple)

The inquiries held can be classified into two categories based on the number of employees that were fatally injured resulting from an accident. Type F is an inquiry held where a single person was fatally injured, whilst type K fatal refer to an inquiry held covers mine disasters, where multiple fatalities occurred.

Figure 4.18 shows single fatal (type-F), and disaster (type-K) inquiries held in the five regions. There was a total number of 144 type-F inquiries and 11 type-K inquiries between 2016 and 2020. The highest number of type-F inquiries were held in 2019 whilst for type K was in 2016.

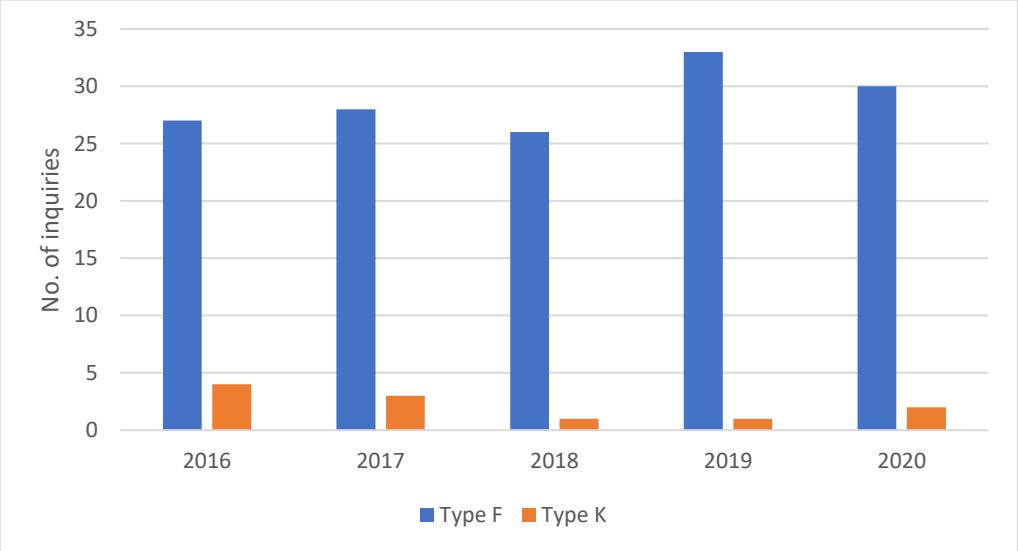


Figure 4.18: Fatal Inquiries Type for All Regions

4.4. Stakeholders' Perspectives on Mine Prosecution Outcomes

This section provides insights into stakeholders' views on mine prosecution as a tool to avoid repeat accidents. To validate the results of mine prosecutions, the stakeholders were asked if they were aware of any successful prosecutions in the mining industry. Figure 4.19 depicts the responses from the survey to this question and of the 44 participants, 95% of participants indicated not being aware of successful mine prosecutions whilst 5% indicated they were.

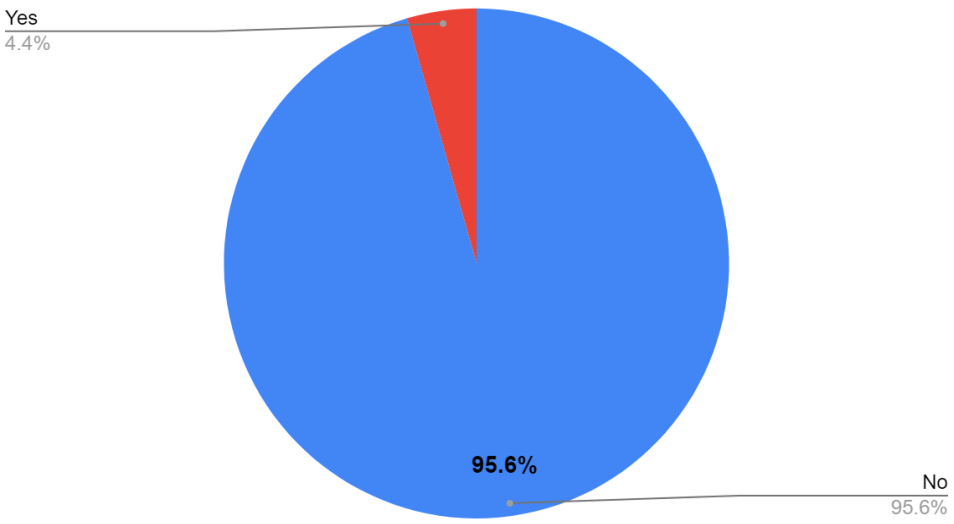


Figure 4.19: Are you aware of the number of successful mine prosecutions?

The representative from DMRE and NPA confirmed that there were no successful prosecutions during the period 2016 and 2020. However, prior to the study period, there was one successful prosecution that was issued. The respondent from the DMRE stated the following:

"There have been successful prosecutions of team leaders in the past, but I personally am not aware of any manager that has been found guilty and jailed." (DMRE Rep1, Interview, 15 March 2021)

The Lily Gold mine disaster inquiry outcome was anticipated to lead to prosecution for those who were to be found grossly negligent, unfortunately, the case is pending as indicated by DMRE. A representative from NPA mentioned that in 2010 and 2011 there was a case which warranted prosecution but due to political influence, the outcome was not enforced (NPA Rep, Interview, 15 April 2021). Politics is one of the critical factors that are influencing the success and/or failure of mine prosecutions. NUM representative gave an example:

"…an inquest at [a] platinum mine where people died as a result of a conveyor belt fire. It was chaired by the Magistrate who recommended prosecution, but the matter was never followed up" (NUM Rep, Interview, 14 March 2021).

This is concerning considering that some of the cases like the Lily Gold mine disaster have sufficient evidence to prosecute as the regional pillar was extracted without proper risk assessment (DMRE Rep 1, Interview, 15 March). The justice system needs to improve to apprehend perpetrators to provide justice towards the families that lost their loved ones.

During interviews held with a key informant from organised labour, the participant alluded to one successful prosecution that occurred in 2005. The representative from NUM indicated that there was one successful prosecution case emanating from mine inquiries held in 2002 by saying:

"…Beatrix mine for the accident that happened in 2001, where the inquiry took place in 2002. Another Beatrix accident happened in 2002 and then the inquiry followed. In those inquiry accidents, the facts were interlinked where the mine failed to comply with recommendations for the first accident and then people lost their lives in the second accident. I recall the matter was referred, and persons were prosecuted…I recall the mine pleaded guilty and the fine paid which was R250 000,00…" (NUM Rep, Interview, 14 March 2021).

The events that transpired at Beatrix on the 15th of May 2000, included a methane explosion that occurred and resulted in seven mine employees losing their lives. Shortly a year later, on the 8th of May 2001, there was another methane explosion at the mine which claimed thirteen employees. The inquiry found that their remedial actions for the first explosion were never implemented, and the mine was found to have been grossly negligent. According to the NUM representative, the mine admitted guilt and were fined (NUM Rep, Interview, 14 March 2021).

According to the NUM representative, the Beatrix Disaster should have set precedence for all other cases with repeat offenders to be prosecuted (NUM Rep, Interview, 14 March 2021). This has not been the case, and to date, this was the only prosecution that was successful. While this is the case, this outcome had a positive impact on the health and safety performance at the mines when looking at the number of incidents involving fire accidents. The NUM representative links this improvement to the

remedial commitments that were made after the prosecution was handed out in 2005 (NUM Rep, Interview, 14 March 2021).

Given the low prosecutions in the industry, the stakeholders were asked if mine prosecutions would assist in reducing repeat accidents. Their responses are depicted in Figure 4.20. The majority 72.7% of participants responded yes, 11.4% said no and 15.9 responded maybe.

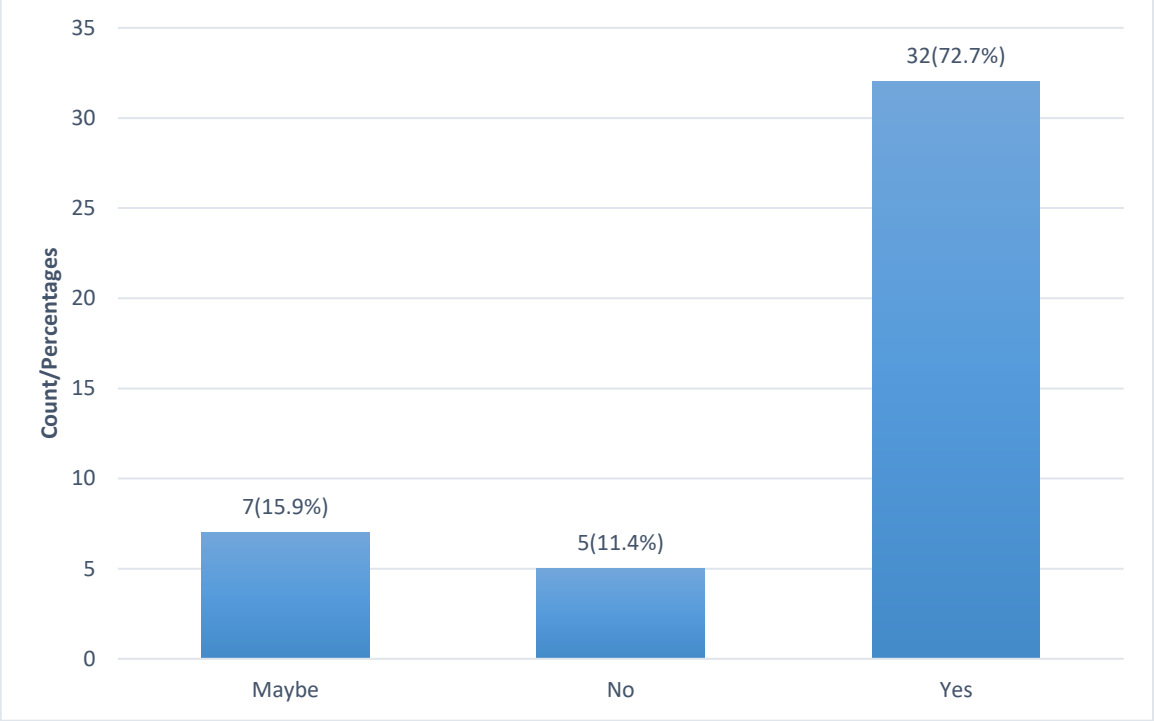


Figure 4.20: Can mine prosecutions reduce repeat mine fatalities?

The same information was disaggregated according to stakeholders to extract stakeholders' position on the question posed. The insights are provided in Figure 4:21. Of the total participants, 72% of participants from DMRE agreed whilst 38% disagreed. More so, 94% of employees agreed whilst 40% of the employers agreed. Lastly, from organised labour, about 75% of the participants agreed whilst 25% disagreed.

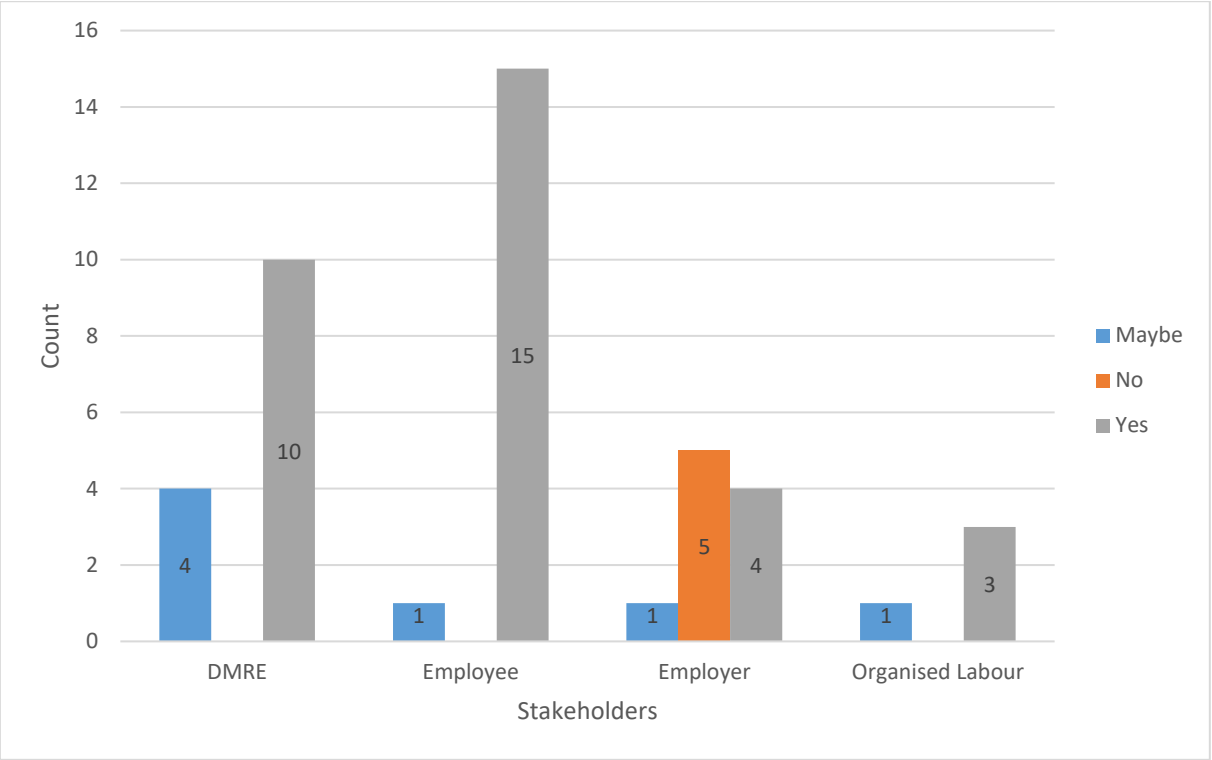


Figure 4.21 Can mine prosecutions reduce repeat mine fatalities according to stakeholders?

4.5. Factors Affecting Mine Prosecution Outcomes

Several factors were identified as affecting mine prosecutions. Figure 4.22 shows the constraints that were identified. The major issues indicated by participants were lack of mining experience from the prosecutor (65.9%), the inadequacy of the prosecution's current structure/processes (52.3%), lack of (human and financial) resources (47.7%), lack of training by the Inspectorate (34.1%) and lack of political will (34.1%). The delay in conducting inquiries was also highlighted by the participants as captured in the figure.

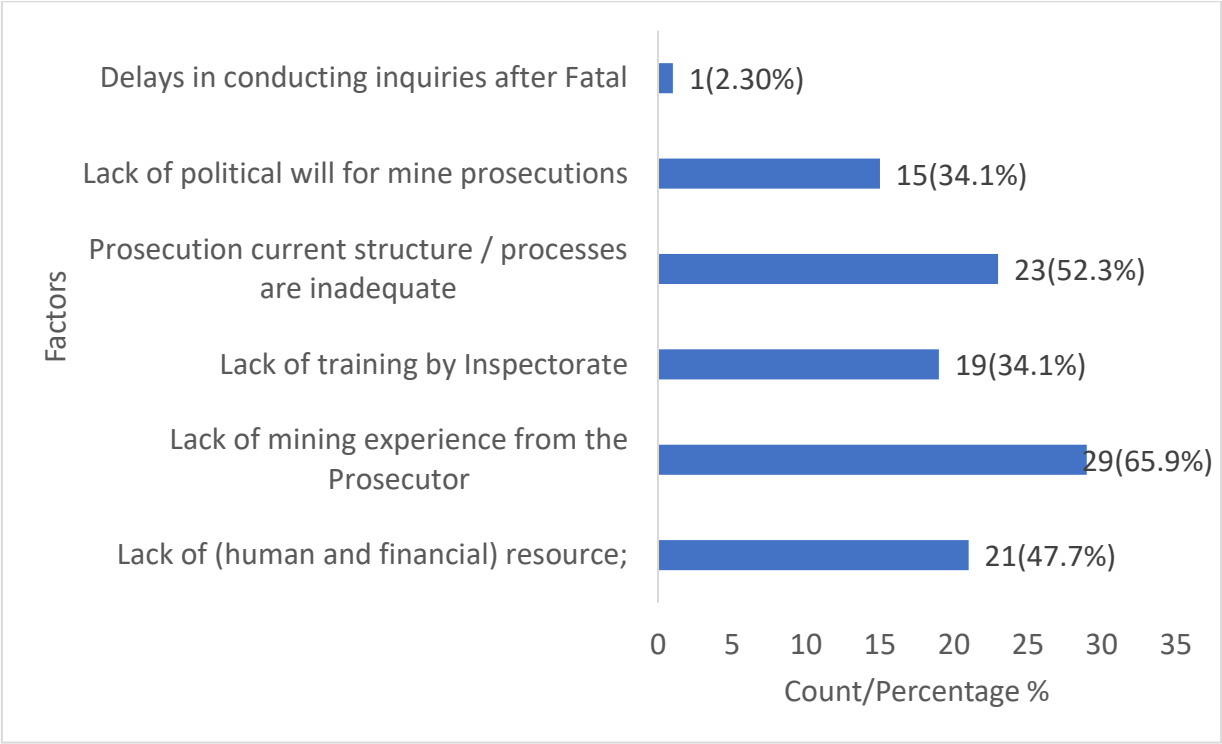


Figure 4.22: Constraints Affecting Mine Prosecutions.

In addition, survey results and insights were obtained from key informant interviews on the factors affecting mine prosecutions and these can be thematised in four categories, namely, policies and procedural practices, lack of resources and capacity, quality of inquiry reports and political interference. The subsequent sections discuss the various factors.

4.5.1. Policies and Procedural Practices

Otto (1997) described that at a high-level, policies should never be ambiguous but rather simplified. In agreement with Otto's principles, participants were requested to provide their perspectives on the adequacy of the current legislation and the inquiry process in achieving prosecution. Figure 4.23 presents the participants' responses. As seen in the figure, 66% of participants agree that the mining legislation is adequate to promote prosecution whilst 25% disagree and 9% remain neutral.

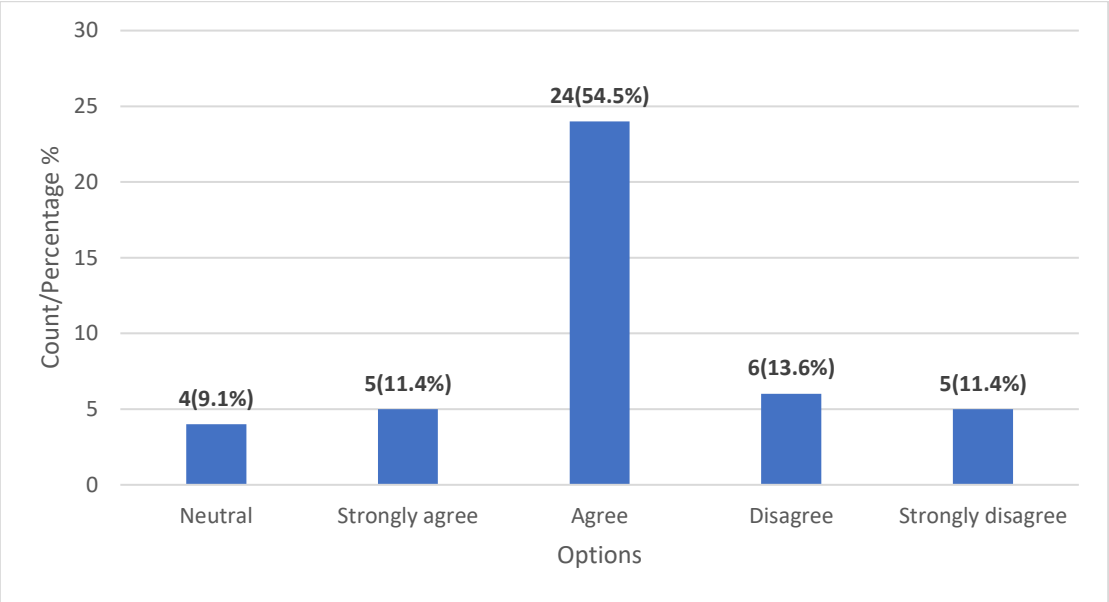


Figure 4.23: Is the Mine Health and Safety Act, Act 29 of 1996, (MHSA) adequate to allow for mine prosecutions?

The MHSA provides a proper platform and guidance to prosecute any person contravening the Act, especially in obvious cases. A key informant from NUM indicated that the current legislative framework is adequate to facilitate prosecution. The participant's response is captured by the following statement:

"Yes, the Act is enough because section 91 states that any contravention with any provisions of the Act constitutes a criminal offence, therefore based on that, the Act is sufficient for prosecution. During the inquiry, should it be found that there was negligence on the part of the offender or any other person, the regulator can recommend a prosecution based on the contravention of a certain section of the Act e.g. Section 2 of the Act states that the employer must ensure a safe working environment for employees, if it is found during an inquiry that the employer has failed to ensure the above mentioned then it clearly indicates the contravention of Section 2 of the Mine Health and Safety Act."(NUM Rep, Interview, 14 March 2021)

In contrast, one of the participants highlighted that the country's constitution and the MHSA are not adequately linked, making prosecution difficult. Other participants indicated that the MHSA is not in line with the spirit of common law (NPA, Interview, 16 March 2020).

Although most participants agree that the MHSA is adequate, the challenge pointed out is that the regulations are not prescriptive regarding the inquiries should be held (DMRE Rep2, interview, 20 February 2021). Another issue that was raised by participants relates to the standard of inquiry reports produced in terms of Section 72 of the Act. It was highlighted that the MHSA does not provide specific details on the key aspects and the extent of coverage required in section 72 reports. More so, there is currently no guideline or framework on how the mine inquiry process should proceed and this creates inconsistencies across the inquiries held. In support of this perspective, a lawyer representing the DMRE mentioned that:

"The challenge is that there are no documents that will ensure that every employee from the Department is aware of the same information that is detailed on how inquiries are held" (DMRE Rep2, interview, 20 February 2021).

4.5.2. Lack of Resources and Capacity

The lack of resources including both human and financial was identified as a major constraint in achieving mine prosecution. The aspect that was repeatedly highlighted was the lack of experience and training of stakeholders from DMRE and NPA.

The DMRE has resource and capacity challenges regarding the number of inspectors available to conduct inquiries. As discussed in the literature section on mine prosecution, there is a mismatch in the number of inspectors versus the number of mines in the country (Mine Health and Safety Council, 2020). According to the DMRE procedures, inquiries are expected to have a turnaround time of four months, and this is seldom met because of staff shortages (MHSI, 2022). It was noted that delays in inquiries are due to the lack of inspectors dedicated solely to handling inquiries, as they are also assigned tasks outside of inquiries. Inspectors have several responsibilities other than conducting inquiries, such as conducting inspections and audits, attending to complaints, and administration. The balance between these responsibilities sometimes affects the quality of inquiries held (DMRE Rep 1, Interview, 2021).

Another issue that was raised was that inspectors are not provided with training to conduct inquiries. They depend on the job training. When comparing them with professional attorneys and advocates who normally defend the witnesses during the inquiries, the Presiding Officer, who is a DMRE inspector, is often incapacitated to make proper rulings during legal proceedings.

In the same context, NPA lawyers struggle with mine inquiries because they are also not knowledgeable about mining engineering and associated technical aspects of the mine. This affects their capacity to make holistic inputs into prosecuting matters (DMRE Rep1, Interview, 15 March 2021; DMRE Rep2, Interview, 2 February 2021). A participant from DMRE stated that.

"The challenge of the NPA according to me is knowledge, because mining is a specialised environment." (DMRE Rep 1, Interview, 15 March 2021)

The MHSI structure employs inspectors for mining, engineering occupational hygiene and medicine. Other inspectors such as qualified rock engineers or seismologists are outsourced. This creates an expert shortage during specific inquiries held related to seismic falls of ground which predominantly is a challenge in the industry as highlighted. Most mines are required to employ a rock engineer or seismologist, and this is advantageous to the mine during inquiries for defence as opposed to MHSI which has these vacancies (Department of Mineral Resources, 2023).

Lastly, the capacity challenge within DMRE was raised in terms of the high turnover of inspectors which is exacerbated by uncompetitive renumeration compared to what is offered by mining companies. As a result, the vacancies in the department are difficult to fill. The DMRE struggles with attracting competent, well experienced and credible professionals as the industry often retains such individuals (Department of Mineral Resources, 2023).

4.5.3. Quality of Inquiry Reports

As noted, the inquiry outcomes are captured in section 72 reports which provide recommendations for either consideration of prosecution of anyone found guilty of contravening the Act. From the quantitative data, numerous cases have had an outcome for recommended prosecution. The information contained in these reports and the quality thereof is therefore critical in following up on the outcome of the inquiry. Figure 4.24 shows survey results of participants' responses on the quality of inquiry

reports compiled (i.e., on whether the quality is sufficient to adequately inform prosecutions), 54% agreed whilst 46% disagreed.

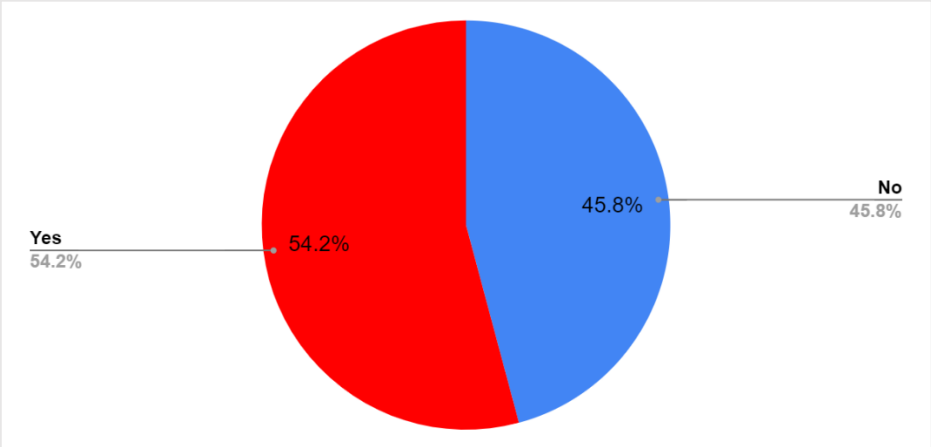


Figure 4.24: Are the quality of inquiry reports sufficient to enable mine prosecution?

Several participants are of the view that the reports are sufficient, and recommendations are often clear, they are concerned about the lack of implementation of the recommendation for prosecution. A lawyer who is a NUM representative stated that:

"My view is that the prosecutions are very low because of the poor manner in which the inspectors are writing the reports including the lack of relevant facts stated in those reports." (NUM Rep, Interview, 14 March 2021)

It was highlighted that the Presiding officers appointed by the DMRE to compile inquiry reports lack legal understanding. In addition, the NUM lawyer mentioned:

"…the quality of the reports is very poor, prosecutors struggle to understand what the report writer is actually trying to convey. I've previously looked at a few reports where I have identified that the employer was supposed to have been found guilty of contravention, but the report would not be clear in stating exactly how the employer has contravened a certain section of the MHS Act. The department has no standard in terms of how the reports are supposed to be written." (NUM Rep, Interview, 14 March 2021)

The inquiry reports are not standardised, and this creates a challenge in terms expected level of quality in the reports to assist in prosecution. The standard of inquiry report is critical towards prosecution as this will ensure that the recipient of these reports namely NPA can understand the contents of the reports. Although some reports

may have been poorly written, there are instances where the reports were of high quality clearly communicating the aspects that have been contravened and reasons for prosecution. Even with high-quality reports, prosecution outcomes may be affected by a mismatch between what is written and how that is understood or interpreted.

The reports are compiled by an expert on the subject matter, for example, a mining engineer presiding over a FOG inquiry. Meanwhile, the recipient of the inquiry report will be a non-expert who may find it difficult to understand the contents of the report, for example, a lawyer recipient of an FOG or Machinery inquiry report. In other words, the mismatch in the understanding may affect the outcome of the prosecution.

4.5.4. Political interference

Participants also indicated the lack of political will as a contributing factor to low prosecutions. The roles of politics can never be ignored when it comes to driving governments policies. A country may have the best policies on paper but may not achieve the desired outcomes that are in the best interest of the ruling government. The implementation of good policies may be affected by corruption and political interference. There is a need to ensure that mine prosecutions are governed by principled judges (Albert-Mensah et al., 2015).

Those who are found guilty of gross negligence may simply go free because of unprincipled political leaders. There is a fear that successful prosecution may adversely affect foreign investment coming into the country. Whilst trade unions are in favour of mine prosecutions, the Minister of DMRE raised concerns that it may be damaging to the mining industry's direct investment should there be prosecutions (AMCU, 2021).

4.6. Areas of Improvement

The participants provided insights into how mine prosecutions can be improved. Figure 4.25 depicts responses from participants on the factors that should be considered to improve mine prosecution rates in the mining industry. The factors to be considered include the need for mine legislation and regulations to be detailed to support the mine prosecution process (68.2%), better collaboration between tripartite stakeholders (63.6), prosecution to focus on cases that are in the public interest, gross and repeat

offenders (54.5%), involvement of specialised experts (52.3%) and reinstating mining courts (43.2%). These aspects are discussed below.

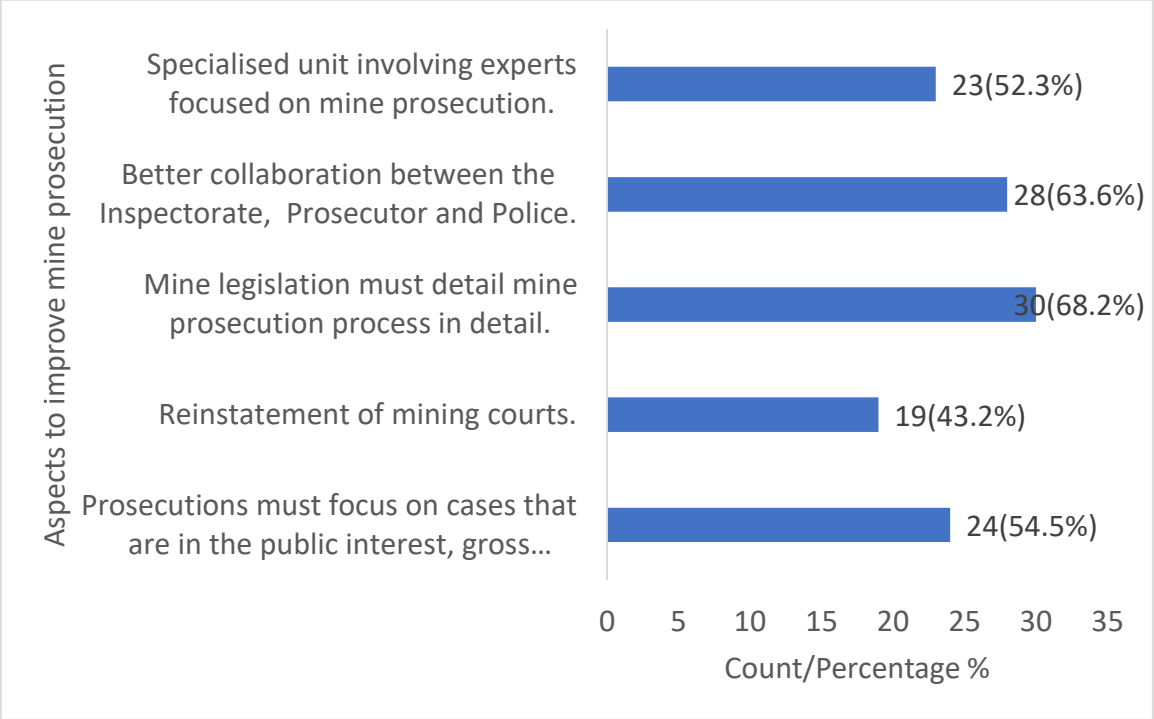


Figure 4.25: Aspects to be considered to improve mine prosecutions?

In addition to the survey responses, several factors were extracted from the key informant interviews. These factors, along with the survey responses, can be thematized into six areas. These areas are 1) Legislation must be detailed, 2) Adequacy of investigations without prejudice, 3) Training and capacity, 4) Mining courts, 5) Collaboration between stakeholders and 6) Combination of enforcement measures.

4.6.1. Legislation must be detailed and prescriptive

The majority of the participant's responses are in agreement that mine legislation must be detailed and prescriptive. It was recommended that the MHSA should be prescriptive in terms of how inquiries are to be held. For example, legislative details should include requirements on the conduct of witnesses and representatives during proceedings.

It was highlighted that reports should be standardised. There should be a general outline of what the report should contain, and this should be part of the provisions provided in the MHSA regulations. The guidelines must be put in place to address the challenges of poorly written reports and to limit the subjectiveness of the report. This

will therefore place both the compiler and the recipient of the reports on the same page in terms of the information that is required in the reports and will enable the establishment of synergies and information sharing.

4.6.2. Adequacy of investigations without prejudice

Investigations of inquiries from the onset must be conducted adequately without prejudice to the employer. One participant stated the following:

"Proper investigations. Holding individuals to account for personal gross negligence. Not to put all legislation under an employer responsibility…" (Employer, Interview, 20 April 2023).

This is critical as the entire inquiry relies on proper investigation so that when evidence is brought to the inquiry, the truth about the accident and how it occurred should be revealed. There should not be unfairness in the inquiry processes where the accountable person was, for example, is the deceased and whilst the blame is placed on the employer (Employer, Interview, 20 April 2023).

4.6.3. Training and capacity

From the survey, the participants agree that there is a need for a specialised unit of experts focusing on mine inquiries to increase the probability of successful prosecution. One of the participants from DMRE highlighted the importance of the investigation process in ensuring a firm foundation for the prosecution process (DMRE Rep 3, Interview, 16 March 2021). The inspectorate must be capacitated with skilled professionals to conduct proper investigations. While investigations are conducted by technical personnel with Engineering and Mining degrees, they lack the legal background that is needed during inquiries. This affects the evidence collection process during accident investigations.

4.6.4. Mining courts

Figure 4.26 presents responses from participants regarding the return of mining courts or a tribunal. The survey results affirm that 86.7% of participants agree that mining courts could assist in increasing the number of mine prosecutions.

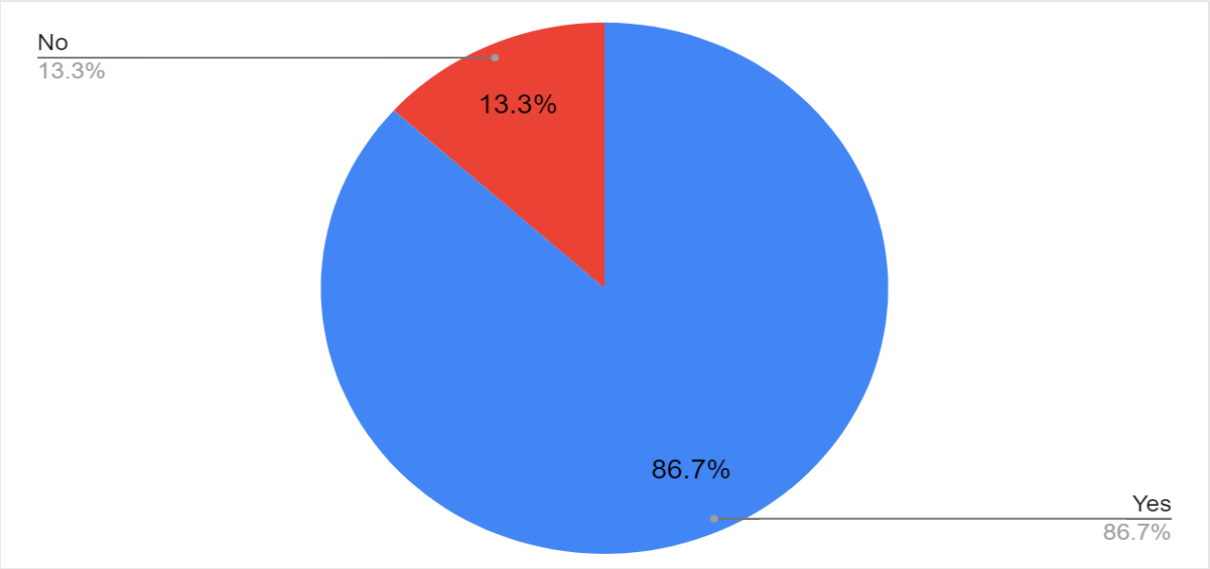


Figure 4.26: Will the return of mining courts or tribunals assist in achieving mine prosecutions?

A representative from NUM and employees argued that instead of inquiries being conducted from the DMRE, the whole process should be heard in mining courts. By so doing, prosecution outcomes will improve as both the DMRE and NPA will be working in synchrony at the mining courts. In support of this, a key informant from DMRE also mention the following:

I recommend that prosecutions should be private because the state does not have the capacity in terms of personnel with knowledge of specialised mining issues (DMRE Rep 2, Interview,20 February 2020).

The participants' responses were disaggregated according to the different stakeholders (i.e., see Figure 4.27). The majority of participants (i.e., 79%) at the DMRE agreed to the return of mining courts whilst 21% disagreed. Most employees (i.e., 94%) are also in agreement. In terms of employers, 80% are in support of the return of courts whilst 20% disagreed. Lastly, organised labour were all in full support of the return of court proceedings.



Figure 4.27: Will the return of the mining court or tribunal assist in achieving mine prosecutions per stakeholder?

4.6.5. Collaboration between inspectorate, prosecution and police

The proposal to alleviate the lack of prosecution includes the need to ensure that there is a tribunal setting where all institutions are operating interdependent (Otto & Corders, 2002; Otto, 1997). This will ensure that during these proceedings a combination of institutions such as the DMRE, SAPS and NPA are functioning concurrently. The participants were asked about the strength of the relationship among the different stakeholders (i.e., see Figure 4.28). On a scale of 1 being weak and 5 being strong, the participants were asked to rate the relationship that the different institutions have. Most participants (i.e., 40%) indicated that the collaboration between the stakeholders is weak whilst the minority (2%) rated the collaboration strong.

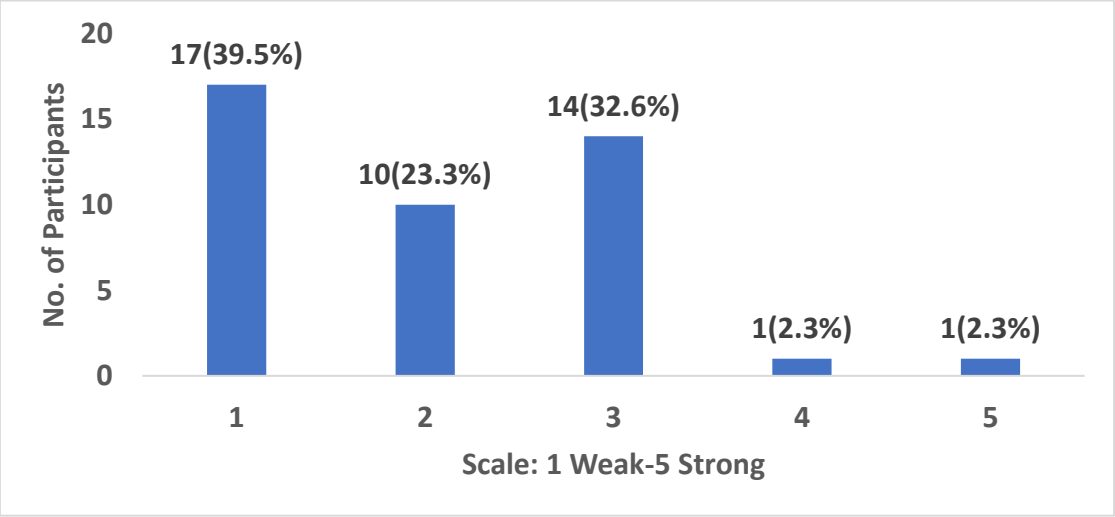


Figure 4.28: Rate the current collaboration between the inspectorate, prosecutor and police in achieving mine prosecution.

In addition to improving the working relationship between the different institutions, the majority of participants submitted that the presiding and prosecution team must involve all relevant experts to ensure that there is information sharing between the different stakeholders. For example, the presiding team should involve a magistrate with assistance from experts, such as engineers from the DMRE. More so, the final report must be jointly written covering both technical and legal aspects required to support the verdicts.

4.6.6. Combination of Enforcement Measures

The participants were asked on a scale of 1 being advisory to 10 being punitive to rate enforcement measures currently implemented by DMRE. Figure 4.29 captures the response from participants where 33% gave a 5 rating, and 14% gave a rating of 6. This suggests that the DMRE is less advisory but more punitive based on the results. While this is the case, mine prosecutions remain low.

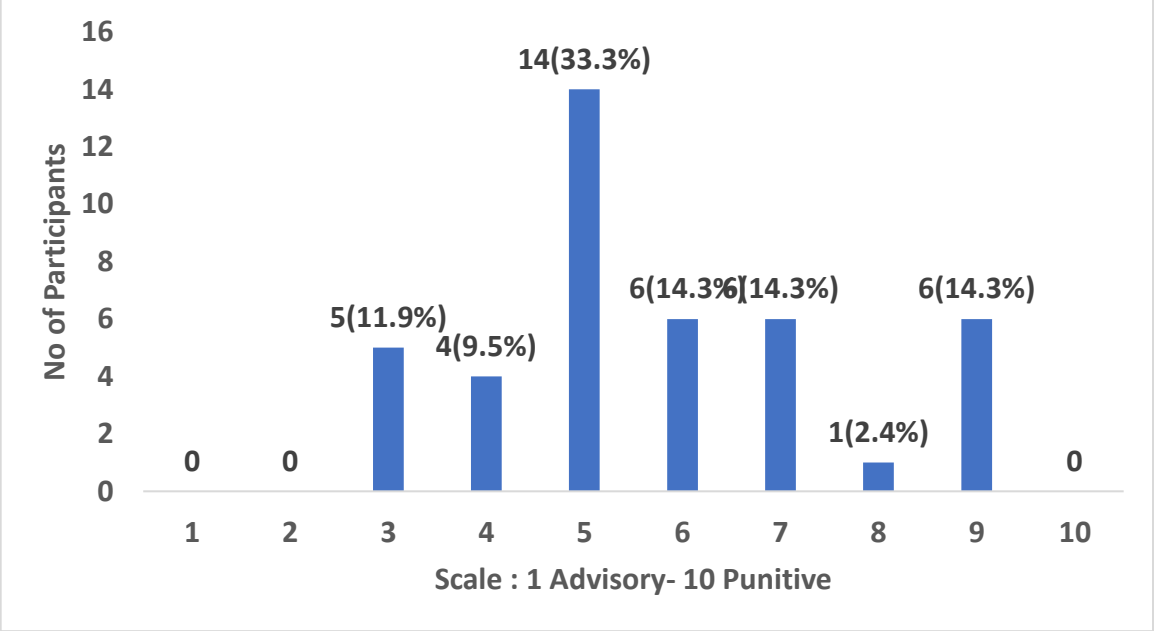


Figure 4.29: Scale from 1-10 rating the enforcement measures of the Inspectorate.

To balance the enforcement strategy from regulators, there is a need to determine the desired prosecution target for the key performance index of the directorate. This will assist in ensuring that the regulator is utilising both advisory and punitive measures (Shaw, et al., 2010; Gunningham & Johnstone,1999). With fewer or light injuries, the regulator may effect lenient penalties, however, repeat offenders may be harshly penalised as this can prevent mine disaster accidents from reoccurring. One of the DMRE key informants submitted:

"The strategy of the inquiry should be 80% remedial and 20% prosecutions because while inquiries are being conducted, mining continues and there are people underground who are vulnerable to danger or even possibility of death" (DMRE Rep 1, Interview, 15 March 2021).

Although prosecution is still important, remedial actions are more critical. A combination of remedial and punitive measures will ensure that re-occurring accidents are prevented, and that additional and innovative measures are introduced to reduce mine accidents.

4.7. Overall Discussion

Quantitative data on the health and safety performance of the mining industry during the period from 2016 to 2020 was presented and analysed. This provided a fundamental understanding of OHS performance and areas of concern. It was evident from the data collected that there was a decline in the number of fatalities and injuries in the mining industry. However, the industry milestone of zero harm was not achieved in 2020.

Fatalities and injuries were still dominant in the gold and platinum sectors. The concern, supported by the results presented, is that the FOG, TMM, General and Machinery accident agencies were dominantly leading during the period between 2016 and 2020. In line with the literature, FOG's accidents remain high as mining is conducted at greater depths which is exacerbated by the re-opening of old areas where mining of pillars takes place (Department of Mineral Resources, 2023). With mines migrating to mechanisation, TMM accidents are also a concern which majority of the time are caused by human factors (Willmer, 2020).

Within the same period 2016 to 2020, the results of mine inquiries and prosecution were presented. It has been evident from the results that the mining industry continues to report fatal accidents that are re-occurring and as of 2020, there has not been any successful prosecution. Hopkins (2005) emphasised that mine prosecution is a critical tool to deter repeat mine accidents, however, the results indicated that there was zero mine prosecution rate for the period 2016 to 2020. This supports the research conducted by Nelwamondo and Mpanza (2026) that prosecution rate in the mining industry remains low.

While this is the case, the majority of participants representing different stakeholders are of the view that mine prosecution could be an important tool for OHS improvement. In other words, if prosecution is meted out, mines will be forced to take necessary steps to ensure they do not have accidents. Seymour (2009) highlighted the necessity of mine prosecution as a tool to remedy outlaw or repeat offenders in the mining industry who have no regard for health and safety.

Several insights were provided into the reason for low prosecutions. The DMRE has a challenge regarding capacity of inspectors to conduct inquiries timeously. More so, there is a high turnover of inspectors due to uncompetitive remuneration compared to the industry. Participants also indicated that the NPA lacks capacity to prosecute mine cases as they are not technical experts in the mining engineering field. As a result, lawyers from NPA lacks the comprehension to prosecute mining cases.

Furthermore, participants pointed out that MHSA does not provide proper guidance on the process in conducting an inquiry. Consequentially, the quality of the inquiry reports compiled does not meet the expected standard for prosecution. Nelwamondo and Mpanza (2016) argued that inquiry reports are not standardised in addition, the collaboration between DMRE and NPA was found to be deficient, thereby affecting prosecution success.

To improve mine prosecution rates, the participants proposed several areas of improvement. Participants indicated that the MHSA must stipulate details on conducting mine inquiries. Otto (1997) described how policies are fundamental to the functionality of institutions and that policies should be clear to avoid misinterpretation. In neutralising biases in accident investigations, the Swiss Cheese approach is key to the unveiling the root cause of the accident (Reason, 1997). Some participants argued that investigation must be conducted adequately without presuppositions, for example putting blame on employers rather than the person found to be negligent. It is also important that the DMRE and NPA are well capacitated with specialised training programmes to ensure prosecution success.

The majority of participants agree to the re-introduction of mining courts or a tribunal in pursuit of successful prosecutions. According to Shaw et al (2010), although it was not successful, the Leon Commission of Inquiry recommended the re-introduction of

Mining Courts. The introduction of mining courts will ensure that all specialised experts are working together, which will foster collaboration between different institutions.

Lastly, more balanced enforcement measures are required that include both punitive and advisory to curb repeat accidents. Grunningham and Johnstone (1999) highlighted that enforcement strategies should be flexible to deter repeat transgressors whilst supporting self-motivated employers who comply with the safety legislation. Participants suggested that the DMRE should consider an enforcement strategy that is 20% punitive and 80% advisory.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Before 1994, mining legislation did not adequately address the challenges relating to health and safety in the mines and hence the number of fatalities was severely high, with more than 100 employees losing their lives in the mining industry. This was a concern coming into democracy and as a result mining legislation was revised following the Vaal Reefs mine disaster where 104 employees lost their lives in 1995. The Leon Commission of Inquiry was established to provide a review of the mining legislation and its adequacy in addressing health and safety issues in the mining industry.

The recommendations from the Commission were instructive and these led to the promulgation of the mining legislation aimed at reducing the number of accidents and improving health and safety performance of the mining industry. The decline in mine accidents and fatalities has been significant looking at the past 20 years after the implementation of the Mine Health and Safety Act.

Based on the progress made, the tripartite (state, employer, and organised labour) agreed on a milestone to achieve zero harm by December 2020. To date, this milestone has not been attained. In terms of the enforcement guidelines, the inspectorate has different avenues to enforce the requirements of the MHSA. These include the provision of information, educating the industry, and withdrawal of exemptions issued when there is non-compliance. Notices of Sections 55 and 54 may also be issued for dealing with dangerous occurrences during a DMRE inspection. The other measures contained in the enforcement guideline include administration fines, suspension of certificates and withdrawal of mining licenses, and prosecutions of those found guilty of contravening the MHSA. The study was initiated at the back of evidence of the mine prosecutions rate being low in South Africa.

The aim of the study was to understand the mismatch between prosecution rate and recommended prosecutions. The objectives of the research included assessing OHS performance and mine prosecution outcomes for the period 2016 to 2020, establishing stakeholders' position on mine prosecutions as a tool to improve OHS performance and identifying constraints and areas of improvement to ensure successful mine prosecutions.

A mixed method approach was selected and used in the study, and it integrated both quantitative and qualitative methods. The study included the collection of data through literature review, document review, surveys and interviews. The interviews were held with targeted individuals ensuring representation of the state, employer, employee, and trade unions. More so, surveys were completed by representatives of the different stakeholders.

The OHS data demonstrated that between the period 2016 and 2020, although the trends show a decrease in mine accidents, repeat fatal accidents were occurring in the industry. The types of fatal accidents re-occurring were dominated by FOG, TMM, Machinery and General. When asked if mine prosecution has the potential to mitigate against re-occurring accidents, the majority of stakeholders agreed. It was established that during the study period, there were several inquiries held and some of the inquiry reports recommended prosecutions to the courts. While this is the case, there has not been successful mine prosecution meted out.

The only successful prosecution that was noted was at Beatrix Mine following two methane explosions that claimed 20 lives in the period between 2000 and 2001. The mine pleaded guilty and a fine of R250 000 00 was issued as a penalty. Subsequently, incidents relating to explosions decreased, and this was used as an example by the participant who holds the view that mine prosecution is important in not only reducing accidents but also contributing to the improvement of OHS in the mining industry. Several constraints were highlighted as affecting mine prosecutions and these are:

- **Political influence -** There is a reluctance to prosecute mine inquiries due to political interests.
- **Legislation not being detailed** - Although the MHSA is adequate to facilitate mine prosecutions, the mining legislation is not prescriptive in terms of the way inquiries and reports are to be conducted and compiled, respectively.
- **Collaboration between state institutions is lacking** - State institutions (DMRE, NPA and SAPS) are not aligned and work is often carried out in silos.
- **Lack of training** - The inspectorate is not trained on the legal aspects and when investigating cases, the evidence that is collected is compromised. Along the same challenge, lawyers from NPA are not experts in engineering matters and hence struggle to provide meaningful inputs on mine prosecutions.

- **Shortage of personnel** – The state does not have sufficient inspectors and lawyers to deal with the high number of inquiries that arise.
- **Poor quality of reports** - Some of the inquiry reports are poorly compiled. Whilst there are those that are properly written, there often is a mismatch in terms of the comprehension between the reader and receiver.

5.2. Recommendations

The following are recommendations from the study:

- Proper investigations must be conducted from the onset, and everyone must be held accountable personally for gross negligence, instead of putting all legislation under an employer's responsibility. In other words, management should not be pursued on obvious cases where the employee was found negligent. Inquiries must be held fairly with favour or prejudice.
- Government institutions such as the DMRE, NPA and SAPS should collaborate to ensure that there is proper communication, and each stakeholder should have a platform where they are able to provide expert advice.
- A specialised unit dealing with mine inquiries should be established to support the mine prosecution process. The specialised unit must be comprised of different experts such as engineers, lawyers and judges. This will reduce the overburdening of inspectors in the current system who are required to conduct other work in addition to the responsibilities. In addition, there should be proper training and capacity building for everyone dealing with mine inquiries.
- Instead of an inquiry, there should be tribunals or mining courts setting right after the investigation of a fatality. Mining courts offer several benefits that will culminate in improvements in terms of report writing, communication and collaboration of institutions. The Gretley Mine disaster in Australia achieved success in prosecution due to the prosecution process held in court.
- The prosecution enforcement strategy should focus on achieving 20% prosecutions from cases which are in the public interest, where there are repeat offenders and gross or negligent behaviour. This will allow the government to emphasise that gross negligence behaviour will not be tolerated by repeat offenders.
- Prosecution data should be properly stored to ensure the tracking of cases to enable access on previous cases for review and research.

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APPENDIX

Questionnaire for Key Informant Interview

Overview

- What is the number of successful prosecutions over the past 20 years?
- Why there are mine prosecution rate discrepancies?
- Are the current procedural practises, human capacity and resources allocated adequate for the desired output?
- Which legislative constraints and remedies could be identified at a policy level in correlation to implementation level?
- Can mine prosecutions have a significant positive contribution towards zero harm and have an impact on foreign direct investments?

1. Skill and Experience

1.1 Where do you work?

1.2 How many years of experience do you have in the mining industry?

2. Mine Prosecutions

2.1 Have you attended a Mine Inquiry as per Section 65 of the Mine Health and Safety Act?

2.2 Do you think the current setup of Mine Inquiry Section as per 65 of the Mine Health and Safety Act will assist in attaining mine prosecutions? If not, what can be done?

2.3 Will mine prosecutions assist the mining industry in achieving Zero Harm? If yes or no, explain your reasoning.

2.4 Have you seen Inquiry reports according to Section 72 of the Mine Health and Safety Act? If yes, were they adequate for attaining mine prosecutions?

3. National Prosecutions Authority

3.1 Are you aware of Inquiry reports according to Section 72 of the Mine Health and Safety Act that is referred to NPA for prosecutions?

3.2 Has there been any successful mine prosecutions that you are aware of? If yes, how many?

3.3 Is the NPA capacitated to conduct mine prosecutions? If yes or no, give reasons why?

3.4 What needs to happen to assist the NPA enable successful mine prosecutions?

Survey

Mine Prosecution

My name is Tshegofatso Kekana and I am a Masters student in Mineral Economics at the University of the Witwatersrand, Johannesburg. The aim of my research Survey is to find out the mismatch between mine prosecution rates in terms of the mine health and safety act and recommended prosecution outcomes of mine fatality inquiries.

As part of this research, I would like to invite you to take part of the survey by answering a questionnaire regarding mine prosecutions and how it would impact the mining sector.

I agree to participate in the Mine Prosecution research

- ○ Yes
- ○ No

My participation in this study is entirely voluntary?

- ○ Yes
- ○ No

I agree that the Researcher may use anonymous quotes in his research report.

- ○ Yes
- ○ No

I do not wish to be quoted by name, but only under a generic description that will keep my identity confidential.

- ○ Yes
- ○ No

I am aware that I have the platform to ask any questions to the Researcher regarding my participation in the research.

- ○ Yes
- ○ No

How many years of experience do you have in the mining industry?

- ○ 0-5
- ○ 6-10
- ○ 10-15
- ○ 15 and above

Who are you representing?

- ○ Employer
- ○ Organised Labour
- ○ DMRE
- ○ Employee
- ○ Other...

Are you aware of the number of successful Mine Prosecutions over the past 5 years?

- ○ Yes
- ○ No

Would you briefly describe any successful Mine Prosecution you are aware of?

Would you agree that Mine Prosecutions from fatalities that occurred are very low?

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ○ Strongly agree

Can Mine Prosecutions assist the mining industry in achieving Zero Harm?

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ○ Strongly agree

Stakeholders and Mine Prosecution Process

Do you think the current inquiry process held for Mine Prosecution is adequate?

- ○ Yes
- ○ No
- ○ Maybe

How would you rate the role currently played by Inspectorate (DMRE) in achieving Mine Prosecution?

	1	2	3	4	5	
Very Poor	○	○	○	○	○	Exellent

Provide reason for your rating on the Inspectorate

How would you rate the role currently played by Prosecutor (DPP) in achieving Mine Prosecution?

	1	2	3	4	5	
Very Poor	○	○	○	○	○	Exellent

Provide reason for your rating on the Prosecutor

How would you rate the role currently played by Police (SAPS) in achieving Mine Prosecution?

	1	2	3	4	5	
Very Poor	○	○	○	○	○	Exellent

Provide reason for your rating on the Police

How would you rate the current collaboration between Inspectorate, Prosecutor and Police in achieving Mine Prosecution?

	1	2	3	4	5	
Very Poor	○	○	○	○	○	Exellent

Provide reason for your rating on the collaboration of stakeholders.

Would you agree that Mine Prosecution must focus on cases that of public interest (i.e. Fatal Mine Disaster)?

- ○ Yes
- ○ No

Would you that agree Mine Prosecution should be focused on gross offenders of OHS?

- ◯ Yes
- ◯ No

Would you agree that Mine Prosecution must focus on repeat offenders of OHS?

- ◯ Yes
- ◯ No

Constraints to mine prosecutions could be attributed to?

- ☐ Lack of (human and financial) resource
- ☐ Lack of training by Inspectorate
- ☐ Lack of mining experience from the Prosecutor
- ☐ Prosecution current structure/processes are inadequate
- ☐ Lack of political will for mine prosecutions
- ☐ Other...

What could be other reasons that can be adopted to achieve successful Mine Prosecution?

Could the following assist in improving mine prosecution?

- ☐ Prosecutions must focus on cases that are in the public interest, gross offenders and repeat offenders.
- ☐ Better collaboration between the Inspectorate, Prosecutor and Police.
- ☐ Reinstatement of mining courts.
- ☐ Specialised unit involving experts focused on mine prosecution.
- ☐ Mine legislation must detail mine prosecution process in detail.
- ☐ Other...

What could be other reasons that can be adopted to achieve successful Mine Prosecution?

Do you have anything to add on Mine Prosecutions?

Are the quality of reports compiled to a standard to enable Mine Prosecution success?

- ◯ Yes
- ◯ No

What could be done to improve these MHSA Section 72 reports in achieving Mine Prosecution?