THE IMPLEMENTATION OF THE ENVIRONMENTAL IMPACT ASSESSMENT DURING THE OPERATIONAL STAGES OF THE MINES:

An Evaluation of the South African Legal Framework

by

Khauhelo Mabohlokoa Fairvex Fanyane (FNYKHA002)

Submitted to **The University of Cape Town**
in fulfilment of the requirements for the degree LLM in the Law of Mineral and Petroleum Extraction and Use
Faculty of Law, University of Cape Town

Date of submission: 13 February 2023

Supervisor: Professor Hanri Mostert
Co-supervisor: Dr Bernard Kengni
Dr Richard Henry Cramer
Department of Private Law, University of Cape Town

DECLARATION

1. I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.

2. I have used the footnoting convention for citation and referencing. Each contribution to, and quotation in, this opinion from the work(s) of other people has been attributed, and has been cited and referenced.

3. This opinion is my own work.

4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

Signature _____Khauhelo Fanyane_____

THE IMPLEMENTATION OF THE ENVIRONMENTAL IMPACT ASSESSMENT DURING THE OPERATIONAL STAGES OF THE MINES:

An Evaluation of the South African Legal Framework

by

Khauhelo Mabohlokoa Fairvex Fanyane (FNYKHA002)

Word Count: [23 337]

This paper was written under the auspices of the DST/NRF SARChI Research Chair: Mineral Law in Africa. The views and opinions expressed here are the author's own and should not be attributed to the DST/NRF SARChI Research Chair: Mineral Law in Africa or the University of Cape Town.

Dedication

I dedicate this dissertation to God the Almighty. When I applied for admission to the University of Cape Town, I asked in faith because I thought admission at UCT was a dream almost too far for me to reach. But I prayed to God to make that dream a possibility. Not only did I receive admission, but God ensured that I passed my modules by sustaining and strengthening me through the most challenging times I encountered during my studies. Through this finished dissertation, I testify that God is faithful. I fully embrace Jesus Christ and The Holy Spirit for guiding me and upholding my hand through it all.

Acknowledgements

I am grateful for the support I received while pursuing my studies through the DST/NRF SARChI Mineral Law in Africa. Several people from my family and friends also contributed to helping me complete this dissertation.

The DST/NRF SARChI Mineral Law in Africa, through Professor Hanri Mostert, created a conducive environment for my colleagues and me to learn about mineral resources law. I am grateful for such an opportunity and thank Professor Mostert immensely.

I also thank my supervisors, Dr. Bernard Kengni and Dr. Richard Henry Cramer, for their committed and consistent supervision. Throughout this dissertation, I have realised the various testing demands lecturers go through to ensure that students attain the objective of completing their dissertations. I commend them for empowering me to complete despite such demands. It is my prayer that God rewards them for their commitment.

I am grateful for the support my family granted me, particularly my children Bohlokoa and Bohlale, who played a vital role in the execution of this dissertation. They extended selfless love and believed in me, making me feel appreciated and strengthened while pursuing this dissertation. My husband, Mojalefa Fanyane, sacrificed his time, making it possible for me to leave our family and children for months to concentrate on my studies away from home. I am grateful for his support. My sister Polo extended a supporting role to me through every challenge I encountered while studying. I thank God for her life, and I pray that her dreams to further her studies are also fulfilled.

I also thank my sister-in-law, Dr Semakaleng Phafoli, my mom-in-law, Jane Fanyane, and my uncles, Lebaka and Matsotetsi Tlelai, for supporting me through the difficult periods I encountered as I completed this dissertation. I thank my friends Thakanyane Matsimane, Ibiye, Mrs Mamonyaka Naleli, Bosao Moyo, and Dr Lineo Letlala for supporting me and praying for me when I needed it most. Finally, I thank my Pastors of Word of Life, Pastor Synodia and Dumisani Dube, for always valuing me and praying for me throughout my life, including during my studies at UCT.

ABSTRACT

Under the Constitution of South Africa, the development of natural resources must not be developed at the expense of the environment. Instead, the development of minerals must be undertaken simultaneously with the protection of the environment, to safeguard the environment from becoming polluted and degraded due to mineral development. As per the National Environmental Management Act (NEMA), the Environmental Impact Assessment (EIA) provisions were enacted to safeguard the environment during the active stages of the mines. However, the administration of NEMA's provisions, including EIA, are designed by NEMA to be implemented by the Minister of Mineral Resources and Energy.

This dissertation analysed whether the Department of Mineral Resources and Energy (DMRE), which is responsible for implementing NEMA provisions, is successfully implementing EIA within the mining sector in South Africa. The dissertation has two sub-inquiries; whether the legislative framework for EIA is adequate for the effective implementation of EIA and whether the existing measures for implementation, compliance monitoring, and enforcement of EIA are successful in ensuring environmental protection during the operational stages of the mines. These issues are considered in light of concerns regarding ongoing environmental degradation and air and water pollution in South Africa caused by the mining sector, despite the statutory provisions for EIA as outlined in NEMA. Some examples highlighting these concerns highlight that some mining companies evade their EIA obligations during the operational stages of the mines and abandon such mines when the minerals are depleted. Furthermore, the study found that the DMRE exacerbates this situation due to inadequate compliance enforcement measures it implements over mines during the mines' operational stages.

The study argues that the use of EIA must not be administratively implemented by the DMRE, because the DMRE's main objective consists of promoting the development of minerals, which conflicts with the protection of the environment. Another argument posited by the study is that the existing legislative provisions for EIA, which do not compel mining companies to make compliance reports accessible to the public, hinder accountability by the mining companies and the DMRE, and consequently render EIA unsuccessful.

As a result, the dissertation recommends that the effective implementation of EIA during the operational stages of the mines will be enhanced provided the state jointly monitors mining activities with mine rights holders and that compliance reports by mining rights holders are made available to the public by the DMRE to confirm compliance. It concludes that the monitoring and management of environmental activities for mining need to be administered by the Department of Forestry, Fisheries and the Environment, which is the department responsible for implementing NEMA environmental provisions integrating EIA, instead of the DMRE.

Table of contents

Chapter One: Introduction

1 Introduction

The Environmental Impact Assessment (EIA) aims to advance the sustainable use of natural resources for present and future generations.[1] This is achieved through its interdisciplinary nature, which involves planning and managing environmental factors adversely affecting the environment.[2] The EIA was first introduced through the United States of America's National Environmental Policy Act of 1969 (NEPA).[3] NEPA sanctioned policies to prevent and eliminate adverse environmental effects from urbanisation, industrialisation, and economic projects such as resource exploitation.[4] In the context of projects such as resource exploitation, NEPA policies mandated project developers to identify the likelihood of adverse environmental impacts for proposed projects before their commencement.[5] Furthermore, the policies required project developers to identify suitable methodologies to prevent and mitigate the identified impacts and their adverse effects on the environment once projects had commenced.[6] A report consisting of impacts anticipated to emanate from project development and projected methods to mitigate such impacts was submitted to government decision-makers to decide whether to approve proposed projects.[7]

Since the enactment of NEPA, the EIA concept has garnered global acceptance by many countries,[8] including South Africa,[9] and by international institutions such as the United Nations.[10] The United Nations Principle 17 of the Rio Declaration on Environment and Development defines EIAs *as; "*national instruments to be used for all projects likely to have significant adverse environmental impacts and that are subject to the decision of the national authority."[11] The United Nations Convention on the Environmental Impact Assessment in a Transboundary Context further defines the EIA as a "national procedure for evaluating the likely impact of the proposed activities on the environment."[12]

The use of EIA in resource exploitation projects like mining is crucial.[13] The reason is that mining is widely regarded as one of the most significant contributors towards the economic growth of resource-rich countries, including South Africa.[14]

---

[1] RK Morgan "Environmental impact assessment: the state of the art" (2012) *Impact Assessment and Project Appraisal 5*; Principle 17 of the Report of the United Nations Conference on the Environment and Development, Rio De Janeiro (1992).
[2] T Field *State Governance of Mining, Development and Sustainability* (2019) 243.
[3] United States of America National Environmental Policy Act of 1969 (NEPA); Morgan (2012*) IAPA 5*; D P Lawrence "The Need for EIA Theory-Building" (2007) *Environmental Impact Assessment Review* 79.
[4] Section 101 [42 USC § 4331].
[5] Section 101 [42 USC § 4331].
[6] Section 102 (C) [42 USC § 4332].
[7] Section 102 (C) [42 USC § 4332]; Field *State Governance of Mining* 243; Morgan (2012) *IAPA* 5.
[8] Morgan (2012) *IAPA* 6. According to Morgan, EIA now forms an integral part of domestic and international law.
[9] Section 24 (4A) of the National Environmental Management Act 107 of 1998 (NEMA).
[10] Principle 17 Rio Declaration (1992).
[11] Principle 17 Rio Declaration (1992).
[12] United Nations Convention on the Environmental Impact Assessment in a Transboundary Context (1991).
[13] Field *State Governance of Mining* 243.
[14] SH Farjana, N Huda, MAP Mahmud & R Saidur "A review on the impact of mining and mineral processing industries through life cycle assessment" (2019) *Journal of Cleaner Production* 1201 1201-1217.

Despite the economic benefits that emanate from mining, the methods used to extract minerals during the operational stages of mines contribute significantly to environmental degradation, necessitating a balance between the extraction of minerals and the preservation of the environment.[15] Examples of mining methods responsible for environmental degradation are surface and open-cast mining, which require digging pits to extract minerals.[16] The adverse effects emanating from these methods include, among others, land degradation and mine waste, which further cause additional effects like air and water pollution.[17]

As a result of the adverse effects caused by mining methods, the mining process necessitates using EIA as a planning tool, to ensure that minerals are extracted optimally and that the negative impacts of mining are managed to prevent and mitigate environmental damage.[18] To that effect, the United Nations Report of the World Summit on Sustainable Development[19] recommends the use of legislated EIA by countries,[20] to address the environmental, economic, social, and health impacts of mining throughout the mining lifecycle.[21] According to Field,[22] the widespread use of EIA by countries and international institutions for the mining sector signifies a collective approval of EIA as a planning tool to be used throughout the operational stages of the mines.[23]

2 Background

South Africa has suffered the consequences of enormous adverse environmental effects caused by mining since the nineteenth century, when the mining industry began within the country.[24] These effects include air pollution, mining waste, and water pollution.[25] One of the significant reasons for environmental degradation was the government's lack of regulation of the mining sector to compel the mining sector to prevent and mitigate the environmental effects caused by mining.[26] However, the Minerals Act of 1991[27] introduced specific provisions regarding the use of EIA for mining companies and the rehabilitation of mining areas simultaneously with mining operations during the operational stages of the mines.[28] The

---

[15] J Glazeswki *Environmental Law in South Africa (2000)* 547; Farjana et al (2019) *JCP* 1201.
[16] Glazeswki *Environmental Law* 547; Farjana et al (2019) *JCP* 1201.
[17] RF Fuggle and MA Rabie *Environmental Management in South Africa* (1999) 374; Glazeswki *Environmental Law* 547; Farjana et al (2019) *JCP* 1201.
[18] G Castilla-Gomez & J Herrera-Herbet "Environmental analysis of mining operations: Dynamic tools for impact assessment" (2014) *Minerals Engineering Journal 87*; Field *State Governance of Mining* 243; Fuggle and Rabie *Environmental Management in South Africa* (1999) 754.
[19] United Nations Report of the World Summit on Sustainable Development (2002).
[20] Resolution 2 Article 46.
[21] Resolution 2 Article 46(a).
[22] Field *State Governance of Mining* 244-250.
[23] Field *State Governance of Mining* 244-250.
[24] Glazewski *Environmental Law 547-552.*
[25] OECD *OECD Environmental Performance Reviews: South Africa* (2013) 33; L Sibanda *Re-Purposing of Mine Waste: An Alternative Management Approach to Gold Tailings in South Africa* MPhil Dissertation University of Cape Town (2019) 12.
[26] Fuggle and Rabie *Environmental Management* 36; Glazeswki *Environmental Law 571.*
[27] The Minerals Act 50 of 1991.
[28] Sections 15(5)(a) of the Minerals Act Amendment 103 of 1993 and sections 38 & 39 of the Minerals Act 50 of 1991.

Mineral and Petroleum Resources and Development Act (MPRDA) replaced the Minerals Act in 2002.[29] Regarding the MPRDA, the Minister of Mineral Resources and Energy implements environmental management laws that are regulated by the National Environmental Management Act of 1998 (NEMA).[30] Consequently, NEMA provides for using EIA in mining; to protect the environment against the social and economic adverse effects caused by mining.[31] Consequentially, a mining project must comply with an EIA authorisation process before commencement.[32]

Despite NEMA provisions integrating the use of EIA, the adverse effects of mining discussed above continue to occur in South Africa, causing growth to the negative environmental impacts that took place before NEMA.[33] Examples include the ongoing acid mine drainage caused by coal and gold mining in the Witwatersrand, leading to the pollution of South Africa's scarce water sources.[34] Another example is air pollution in Mpumalanga, partly caused by the mining of coal used for electricity generation.[35] The present and continual accumulation of these adverse environmental effects call for investigations, thus forming the basis for this study.

2.1 Premise

Negative environmental impacts caused by mining are not sufficiently dealt with in South Africa despite the legislative framework that consists of EIA provisions for preventing and remedying mining adverse effects.[36] Provisions in place for

---

[29] The Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA).
[30] Sections 50A (2)(b), 24C(2A) of NEMA and section 38A of the MPRDA.
[31] Section 24(4), 24(4A),24N (1) and 24(1A) of NEMA.
[32] Section 24F(1)(a) of NEMA; Section 38A (2) MPRDA.
[33] OECD *Environmental Performance Reviews* 37-39. According to this report, mine tailings from mining areas like Gauteng are a source of windblown dust. South Africa is also reported to be one of the leading greenhouse gas emitters in the world due to coal mining which the country has vast reserves; MMS Mutanga *Management and Mitigation of Acid Mine Drainage in South Africa: Input for Mineral Beneficiation in Africa* (2016) 9-10; K Wegerich and J Warner *The Politics of Water: A survey* (2010) 148. Wegerich and Warner report that historically, the Witwatersrand represented enormous springs of water sources of which the name 'Witwatersrand' bears its name. Nonetheless, these sources dried up when mining commenced. This situation escalated to acid mine drainage, which drained into nearby river basins such as the Western Basin. The problem has persisted despite evolving environmental regulations.
[34] B Kengni *Strengthening decision-making processes to promote water sustainability in the South African mining context: The role of good environmental governance and the law* MPhil Dissertation University of Cape Town (2020) 4-8; Sheree Bega "State halts its R10bn long-term plan to fully treat acid mine water" Mail & Guardian (12-06-2021)< https://mg.co.za/environment/2021-06-12-state-halts-its-r10bn-long-term-plan-to-fully-treat-acid-mine-water/> (accessed 16-01-2023).
[35] *Groundwork Trust and Another v Minister of Environmental Affairs and Others (39724 of 2019) [2022] ZAGPPHC.* In this case, the North Gauteng High Court ruled that the air pollution levels in the Mpumalanga Highveld violated the environmental rights entrenched in the Constitution of South Africa. The government was being challenged by a non-governmental organisation to take precautionary measures to control and manage air pollution levels in Mpumalanga Highveld to ensure that such levels did not exceed prescribed standards in the Air Quality Act 39 of 2004 Section 20 of the Air Quality Act mandates the Minister of Environmental Affairs to publish regulations regarding mechanisms and procedures for managing approved air quality levels; Centre for Environmental Rights *Zero Hour: Poor Governance of Mining and the Violation of Environmental Rights in Mpumalanga(01-05-2016*) viii <https://cer.org.za/wp-content/uploads/2016/06/Zero-Hour-May-2016.pdf> (accessed 23-01-2023); V Munnik "The Social and Environmental Consequences of Coal Mining in South Africa: A Case Study" (2010) *Environmental Monitoring Group 11*.
[36] JF Durand "The Impact of gold mining in the Witwatersrand on the rivers and karst system of Gauteng and Northwest Province, South Africa" (2012) *Journal of African Earth Sciences 24* 38-39; K Odeku "Effective Implementation of Environmental Management Plan for sustainable mining" (2017) 8 *Environmental Economics* 26 27.

the implementation of EIA are not adhered to during mine operational stages but instead serve to complete paperwork to facilitate the commencement of mining activities.[37]

2.2 Research Aims

This research focuses on studying the use of EIA in South Africa's mining sector to analyse the success with which its implementation helps prevent adverse environmental effects emanating from mining activities. The focus is on whether the legislative framework for EIA use in the mining sector enables adequate environmental protection throughout the mines' operational stages.

3 Research Questions

To achieve the above aim, this research seeks to answer whether EIA provisions outlined in the NEMA, NEMA Environmental Impact Assessment Regulations, and the MPRDA are sufficiently implemented to prevent the negative environmental impacts of mining in South Africa. This question leads to the following sub-questions:

1. Is the regulatory framework for EIA effective in preventing adverse environmental impacts caused by mining activities during the operational stages?
2. Are the existing measures for implementation, compliance, and monitoring of EIA successfully ensuring environmental protection during the mining operational stages?

4 Methodology

This research adopts doctrinal research methodology, relying on national legal instruments, case law, journal articles, textbooks, reports, and other written material, to analyse how EIA is implemented in South Africa. Limited international law instruments are also used to illustrate the evolution of EIA internationally and its link to national law.[38] Based on the outcome of the doctrinal research methodology, the research further analyses the level of effectiveness and success of EIA. The focus of this analysis is to seek an in-depth assessment of the implementation of EIA within South Africa's mining context and to advance further knowledge on the subject.

---

[37] Durand (2012) *JES* 40; W Gumbley "Has environmental impact assessment (EIA) lost its credibility? Recent concerns from Australian and Canada" in P Martin & A Kennedy (eds) *Implementing Environmental Law* (2015) 91.
[38] Glazeswki *Environmental Law* 31.

5 Research Structure

This research is divided into five chapters. Chapter one, the current chapter, introduces the topic and provides contextual background. It further explains the problem that the study seeks to examine and provides an outline of research questions and methodology.

Chapter two discusses the nature of EIA, its theoretical and procedural underpinnings, and the principles used to measure its effectiveness. The aim is to provide an understanding of the formation of EIA and its significance in preventing the adverse environmental effects caused by mining.

Chapter three outlines the regulatory framework for EIA in South Africa. This consists of the regulatory provisions of EIA provided by the Constitution of South Africa,[39] NEMA and the MPRDA regarding its implementation during the operational stages of the mines.[40]

Chapter four critically examines the level at which mining rights holders comply with the regulatory provisions of EIA as outlined by NEMA and implemented by the MPRDA. It further analyses the level of effectiveness through which the Department of Mineral Resources and Energy (DMRE), which is the department responsible for implementing NEMA provisions for mining, implements and monitors compliance with EIA in the mining sector. Moreover, the chapter identifies shortcomings of legislative requirements affecting the effectiveness of the implementation of EIA by the mining companies and the DMRE within the mining sector.

Chapter five draws a conclusion from the research findings and makes recommendations for improving the institutional implementation of EIA within the mining sector. It also suggests the law reforms that will enhance the implementation of EIA.

[39] Section 24 of the Constitution of South Africa,1996.
[40] Michael Kidd *Environmental Law* 2 ed (2011) 228-229.

Chapter Two: Environmental Impact Assessment: Description, Theory, and Process

1 Introduction

This chapter defines the Environmental Impact Assessment (EIA). It further discusses the theory and process of EIA to provide an understanding of how EIA can be used for development projects such as mining. The rationale for discussing theory and process is that EIA is dichotomous and integrates theory and process, making theory and process indivisible.[41] For example, an undertaking of an EIA process integrating preparation and implementation to prevent and mitigate environmental damage for projects must be prepared based on substantive theoretical principles.[42]

2 Environmental Impact Assessment Description

The EIA has two universal definitions. First, it is defined as a broad idea to assess the likely implications of proposed projects on the environment.[43] According to Caldwell,[44] the ideology of EIA emerged in the 1950s but was later developed into policy and procedure in the United States of America in 1969 through the National Environmental Policy Act (NEPA).[45] NEPA was passed following an influx of environmental hazards caused by industrial projects.[46] One example highlighting such environmental hazards is the US Santa Barbara's offshore Pacific Ocean oil spill that occurred during a petroleum production project in 1969. The oil spill caused imperilling water pollution, also resulting in the loss of the ocean ecosystem and marine life.[47] Water pollution also negatively impacted the health and social life of the general public.[48] NEPA aimed to guide the decisions of state organs by ensuring that the environmental impacts of proposed projects were assessed and that mitigation strategies regarding their elimination were formulated and approved before projects could commence.[49]

---

[41] Lawrence (2007) *EIAR* 83 & 95; L Caldwell "Environmental Impact Analysis (EIA): Origins, Evolution, and Future Directions" (2012) *Journal of Impact Assessment* 75; M Cashmore "The role of science in environmental impact assessment: process and procedure versus purpose in the development of the theory*" (2004) Environmental Impact Assessment Review* 403 408.

[42] Morgan (2012) *IAPA* 6; Lawrence (2007) *EIAR* 80.

[43] Morgan (2012) *IAPA 5.*

[44] Caldwell (2012) J*IA* 76.

[45] The National Environmental Policy Act of 1969.

[46] C Clarke & J Hemphill "The Santa Barbara Oil Spill: A Retrospective" (2002) 64 *Yearbook of the Association of Pacific Coast Geographers* 157-162 According to C Clarke & J Hemphill NEPA is one of the direct consequences of the oil spill; Caldwell (2012) *JIA* 77.

[47] Clarke & Hemphill *Yearbook* 156-162. According to Clarke and Hemphill, the precipitation of the oil spill resulted from the government's waiver of regulatory preconditions of the time regarding preconditions necessary for oil drilling. This waiver enabled an Oil Company called Union Oil (Pty) Ltd to circumvent the required extraction procedures to extract oil. As a result, the procedures used to extract oil were not sustainable and led to the oil spill.

[48] Morgan (2012) *IAPA 5*; Cashmore *(2004) EIAR* 404; Caldwell (2012) JIA 76.

[49] Sections 101 [42 USC § 4331] and 102 (C) [42 USC § 4332]; Morgan (2012) *IAPA* 5. According to Morgan, the other objective of NEPA was to ensure accountability to the public. This was done by publishing impact statements that addressed predicted environmental impacts and how the state would address them.

The EIA is secondly defined by the United Nations Rio Principle 17[50] as a national instrument or tool used by governments to determine and decide whether projects having the likelihood to cause adverse environmental impacts should be approved.[51]

3 Environmental Impact Assessment Theory

Further to its definition, EIA is built upon model theories.[52] These theories describe the philosophical and technical formation of EIA[53] and define techniques, methods, and procedures used in its application.[54] The theories comprise of the evaluation and procedures theory,[55] which postulates screening and valuation of impacts. Other theories are the biological theory, representing the assessment of environmental or ecological conditions[56] and the public policy theory and the rational theory.[57] The public policy theory provides a theoretical foundation of consultative procedures regarding the identification of impacts such as scoping.[58] The rational theory is denoted as traversing all other theories because it uses scientific methods to assess the level of impacts.[59] The public and rational theories are discussed in detail below. The main reason for further discussing the rational and public theory beyond this section, is to demonstrate in the context of the rational theory, how it is constituted and why it is intrinsic in all EIA theories including public theory.[60] The public theory is further discussed because of its consultative nature,[61] which for purposes of this dissertation is considered essential because it provides theoretical insight of how governments develop and implement EIA laws for mining projects which are carried out through rational scientific methods.[62]

---

[50] Principle 17 of the Rio Declaration 1992.
[51] See Section 1, Chapter One of this dissertation.
[52] Morgan (2012) *IAPA 7;* Lawrence (1997) *EIAR* 79-80.
[53] Cashmore *(2004) EIAR* 406; Lawrence (1997) *EIAR* 79-80.
[54] E Hyman, E L Stiftel, B H David, and MRC Nichols *Combining Facts and Values in Environmental Impact Assessment: Theories and Techniques* (2018) 5.
Cashmore *(2004) EIAR* 406; Lawrence *(1997) EIAR* 79-80; C Wood *Environmental Impact Assessment: A comparative Review* (2003) 2 ed 2.
[55] Lawrence *(1997) EIAR* 80.
[56] Lawrence *(1997) EIAR* 80.
[57] Lawrence *(1997) EIAR* 80.
[58] Lawrence (1997) *EIAR* 80.
[59] Morgan (2012) *IAPA 7;* J Weston "EIA Theories- All Chinese Whispers and No Critical Theory" (2010) *Journal of Environmental Assessment Policy and Management* 357 357-361; Lawrence (1997) *EIAR* 80.
[60] Morgan (2012) *IAPA 7;* J Weston "EIA Theories- All Chinese Whispers and No Critical Theory" (2010) *Journal of Environmental Assessment Policy and Management* 357 357-361; Lawrence (1997) *EIAR* 80; DP Lawrence "Planning theories and environmental impact assessment" *(2000) Environmental Impact Assessment Review* 608-611.
[61] Lawrence (1997) *EIAR* 80
[62] M Cashmore, R Gwilliam, R Morgan, D Cobb and A Bond "The interminable issue of effectiveness: substantive purposes, outcomes and research challenges in the advancement of environmental impact assessment theory" *(2004) Impact Assessment and Project Appraisal* 296-298. According to Cashmore et al, sustainable development through the use of EIA is better achieved through a collective combination of scientific and participatory methods entailing economic, social and economic imperatives. Furthermore, these processes or methods must first be considered conceptually from their theoretical underpinnings.

3.1 The Rational Model Theory

The rational model theory, in the context of EIA, represents a scientific method used to investigate and predict how the physical, chemical, and biological effects of economic projects affect the natural environment.[63] This model originates from the premise that science is a rational process that produces objective results.[64] As a result, rationality postulates decision-making based purely on factual considerations without subjective inclinations or influence.[65]

EIA Investigations based on rational theory are made by environmental scientists through a method akin to a research project.[66] The method is posited to be systematic, technical, and objective.[67] Moreover, the method defines research objectives and also undertakes modelling and experimental manipulation like a research problem.[68] Research findings consist of predictions and probabilities of changes by economic developments in plants, animals, and humans[69] and are posited to carry elements of neutrality based on science.[70] According to Field,[71] most countries have established their EIAs upon the rational model.[72]

The rational theory has nonetheless been criticised as unrealistic because of the proposition that changes predicted by science are not irrefutable.[73] The basis for the criticism is that plans that are based on scientific predictions to combat environmental damages can change over time.[74] Another criticism against the rational theory is that it cannot be divorced from administrative and political influence in decision-making.[75] For instance, Field opines that governments may dominate the rationalist model because governments dictate parameters regarding what information developers should process for an EIA undertaking.[76] Ostensibly, political involvement dilutes rationality and results in subjectiveness.[77] As a result, some scholars even suggest that governmental political objectives must be integrated into the scientific standards forming the rational theory.[78]

---

[63] Lawrence (1997) EIAR 80; DP Lawrence "Planning theories and environmental impact assessment" (2000) 20 Environmental Impact Assessment Review 607 608-610.
[64] S Jay, C Jones, P Slinn & C Wood "Environmental impact assessment: Retrospect and prospect" (2006) 27 *Environmental Impact Assessment Review* 287 288.
[65] Weston (2010) *JEAM* 360.
[66] Cashmore *(2004) EIAR* 408.
[67] Morgan (2012) *IAPA 8*; Hyman et al. *Combining Facts and Values in Impact Assessment* 7; Cashmore *(2004) EIAR* 408.
[68] Cashmore *(2004) EIAR* 408.
[69] Hyman et al *Combining Facts and Values in Impact Assessment* 5.
[70] Morgan (2012) *IAPA 8*; Cashmore *(2004) EIAR* 408.
[71] Field *State Governance of Mining* 258.
[72] Field *State Governance of Mining* 258.
[73] M Kidd, F Retief and R Alberts "Integrated Environmental Assessment and Management" in ND King, HA Strydom, FP Retief (eds) *Fuggle and Rabie's Environmental Management in South Africa* (2018) 1223-1224
[74] Kidd et al "Integrated Environmental Assessment and Management" in King et al *Fuggle and Rabie's Environmental Management* 1223-1224
[75] Lawrence (2000) *EIAR* 610.
[76] Field *State Governance of Mining* 258.
[77] Lawrence (2000) *EIAR* 610; Field *State Governance of Mining* 260.
[78] *M Cashmore et al (2004) IAPA 298-299*; Lawrence *(2000) EIAR* 610-611; Hyman et al *Combining Facts and Values in Environmental Impact Assessment* 7.

3.2 Public Policy Model Theory

Unlike the rational theory, the public policy model theory is not only based on science and rationality.[79] It also considers subjective societal values to compute an understanding of economic projects' environmental impacts.[80] Subjective values signify socio-economic interests, psychological values, and the country's political will.[81] The decision-makers combine societal values and scientific findings to decide whether or not to approve proposed economic projects.[82] According to Field, the combination of rationality and subjectivity entailing views of the communities is necessary as it produces in the case of mining, the social license of mining developers to operate.[83]

In the context of South Africa for example, section 24 of the Constitution of South Africa implies the promotion of subjectiveness in the extraction of minerals.[84] The reason is that the section requires, on the one hand, that government should promote socio-economic development through the development of natural resources.[85] On the other hand, the government also directs that the development of natural resources must not negatively affect the environment and society's well-being.[86] To that effect, the Constitution mandates the government to use reasonable measures, which can be subjective to ensure that the development of natural resources does not impede on the environmental rights of citizens.[87] This constitutional provision serves as an imperative through which legislative Acts dealing with environmental protection derive their mandate.[88]

Even with the EIA theory models articulated above, the EIA theory has generally been criticised for needing more substantive background.[89] Reasons for this criticism vary, but include, among others, that EIA theory needs to be adequately developed because it is over-reliant on different disciplines.[90] The lack of development is attributed to NEPA's enactment, which pioneered the EIA procedure before developing its theory.[91] Another criticism infers that the scientific principles of EIA do not integrate concepts with experimental scientific investigations.[92]

---

[79] Lawrence *(1997) EIAR* 80.
[80] Hyman et al *Combining Facts and Values in Environmental Impact Assessment* 5.
[81] Glasson & Therivel *Introduction to Environmental Impact Assessment (*2019) *20.*
[82] Hyman et al *Combining Facts and Values in Environmental Impact Assessment* 5; Field *State Governance of Mining* 258.
[83] Field *State Governance of Mining* 260.
[84] Section 24 of the Constitution of South Africa,1996.
[85] Section 24(b) Constitution of the Republic of South Africa, 1996.
[86] Section 26(b) Constitution of the Republic of South Africa, 1996.
[87] L Kotzé, *Global Environmental Constitutionalism in the Anthropocene* (2016) 156-157; A Du Plessis "Public Participation, Good Environmental Governance and Fulfillment of Environmental Rights" (2008) 11 *Potchefstroom Electronic Law Journal* 17.
[88] Section 2 (2) and 4(g) NEMA provides for environmental management that places people, their values and their needs at the forefront; J Glazewski "Environmental Provisions in a New South African Bill of Rights" (1993) *Journal of African Law* 177 177-184; South Africa National Development Plan 2030.
[89] Lawrence (1997) *EIAR* 83; Cashmore (2004) *EIAR* 404.
[90] Lawrence *EIAR* 80-97.
[91] Morgan (2012) *IAPA* 8.
[92] Lawrence *EIAR* 83-84.

4 Environmental Impact Assessment process

The process or procedure of EIA is, in most situations, established through legislation that stipulates how EIA must be carried out before the commencement of a project and during its operational stages.[93] Before the project's inception, the process of EIA entails the identification of impacts founded on theories discussed above and also deals with the formulation of plans to combat adverse effects caused by the identified impacts on the environment.[94] Pre-commencement procedures of EIA include screening, scoping, impact assessment, and impact analysis statement reporting.[95]

The process of EIA applied during the operational stages of projects consists of monitoring, mitigation, compliance enforcement, and compliance auditing.[96] An environmental management plan or programme, which outlines methodology, schedule, and persons responsible for monitoring, mitigating, and compliance enforcement, is used to implement enforcement during the operational stages of the projects.[97]

4.1 Screening

Screening constitutes one of the first stages of an EIA process.[98] It is used to assess the type of proposed project development to identify whether such a project warrants an EIA undertaking.[99] Screening is achieved by conducting a feasibility study to examine the severity of environmental impacts likely to emanate from a proposed project.[100] This infers that the screening process is made on a case–by–case assessment.[101] However, some countries like South Africa have predetermined categories of projects requiring EIA in their legislation.[102] In the context of South Africa, the National Environmental Management Act (NEMA)[103] classifies activities requiring EIA as listed activities.[104] In terms of NEMA, mining falls under a category of listed activities because of its inherent nature to adversely affect the environment.[105] This

---

[93] Kidd et al "Integrated Environmental Assessment and Management" in King et al Fuggle and Rabie's Environmental Management 1223-1224.
[94] UNEP *Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated* Approach (2004) 44-49.
[95] UNEP *Environmental Impact Assessment* 44-49.
[96] UNEP *Environmental Impact Assessment* 44-49.
[97] UNEP *Environmental Impact Assessment* 55.
[98] Wathern *Environmental Impact Assessment: theory and practice* (2015) 9; UNEP *Environmental Impact Assessment* 44.
[99] Field *State Governance of Mining* 258.
[99] Wathern *Environmental Impact Assessment* 9; UNEP *Environmental Impact Assessment* 44.
[100] M Marais, P Retief, L A Sandham & D P Cilliers "Environmental management frameworks: results and inferences of report quality performance in South Africa" (2014) *South African Geographic Journal* 83 84.
[101] Wathern *Environmental Impact Assessment* 9.
[102] UNEP *Environmental Impact Assessment* 46.
[103] Act 107 of 1998.
[104] Section 1 read with section 24 (2) (a) and (d) of NEMA.
[105] Section 24C (2A) of NEMA; Marais et al (2014) *SAGJ* 84.

classification indicates that the government is committed to providing institutional capacity for an EIA undertaking regarding mining as a listed activity.[106]

4.2 Scoping

Scoping involves identifying the environmental areas that need to be covered in an EIA procedure.[107] There are two methods of scoping, referred to as social and technical scoping.[108] Technical scoping identifies physical and ecological changes likely to ensue from a proposed project.[109] Social scoping deals with how the physical and environmental impacts may affect the social life of the public.[110] The basis for scoping is to set a framework regarding technical and social issues before the decision-making process.[111] The notion is that this process must be consultative between the developers and all stakeholders likely to be directly affected by a project.[112] Through this involvement, precautions are made to ensure that the stakeholder's concerns are not overlooked or excluded from the scope and design of EIA.[113] Some stakeholders are decision-makers, related agencies, and the public, such as indigenous people and local communities who derive their livelihood from resources where developments are proposed.[114]

4.3 Impact Analysis Statement and Decision-making

An impact analysis statement or report involves a summary of findings covered in an EIA process from procedures including screening, scoping and an impact assessment reporting.[115] The report also includes an environmental management plan or programme outlining strategies for monitoring and managing impacts once a project proposal has been approved.[116] Consequently, an impact analysis statement provides foreknowledge to the decision-makers about the envisaged effects and consequences likely to emanate from the proposed project.[117] Decision-makers use impact analysis to determine whether to approve a proposal for project development using EIA theories.[118]

---

[106] Field *State Governance of Mining* 253.
[107] G Beanlands "Scoping methods and baseline studies" in P Warthen (ed) *Environmental Impact Assessment Theory and Practice* (1990) 34; C Wood *Environmental Impact Assessment* 161-164.
[108] J Maughan *Environmental Impact Analysis Process and* Methods (2013) 126.
[109] Beanlands "Scoping Methods" in Wathern (ed) *Environmental Impact Assessment Theory* 36.
[110] Beanlands "Scoping Methods" in Wathern (ed) *Environmental Impact Assessment Theory* 34; Gumbley "Has environmental impact assessment (EIA) lost credibility?" in Martin & Kennedy (eds) *Environmental Law 103.*
[111] Wood *Environmental Impact Assessment* 159; Beanlands "Scoping Methods" in Warthen (ed) *Environmental Impact Assessment Theory* 35; UNEP *Environmental Impact Assessment* 46.
[112] Beanlands "Scoping Methods" in Warthen (ed) *Environmental Impact Assessment Theory* 36.
[113] UNEP *Environmental Impact Assessment* 46.
[114] Beanlands "Scoping Methods" in Wathern (ed) *Environmental Impact Assessment Theory* 34; UNEP *Environmental Impact Assessment* 47-48.
[115] Wood *Environmental Impact Assessment* 177.
[116] UNEP *Environmental Impact Assessment* 55.
[117] Wathern *Environmental Impact Assessment* 1; Glasson & Therivel *Environmental Impact Assessment* 3.
[118] Wood *Environmental Impact Assessment* 177.

4.4 Monitoring and Management of Impacts During the Operational Stages of Projects

Glazewski defines management in the context of environmental protection as a process involving objectives, targets, actions, and responsibilities to achieve the project's outcome.[119] In the context of EIA, Morgan highlights that the management of EIA involves activities used to prevent adverse impacts by ensuring that mitigation and rehabilitation processes occur.[120] One of the key instruments used for managing and monitoring impacts identified during EIA assessment is the Environmental Management Plan (EMP), which is considered and approved simultaneously with the impact analysis statement.[121] As discussed earlier,[122] the EMP consists of impact monitoring, mitigation, and compliance monitoring, which form part of management procedures to be implemented during the operational stages of projects.[123]

4.4.1 Impact Monitoring

An Impact monitoring procedure is used to detect the occurrence of impacts during the operational stages of the project.[124] Impact monitoring also seeks to analyse whether the effects of a project are occurring as a consequence of the impacts initially identified in the EIA impact analysis statement.[125] Moreover, impact monitoring considers changes that were not previously predicted but that occurred during the operational stages of the development project. This includes cumulative impacts, accumulating due to developments occurring in the same geographic area.[126] Cumulative effects often occur in the mining sector.[127] For instance, existing mining companies in the Witwatersrand area in South Africa mostly inherited acid mine drainage pollution from previous mining activities conducted within the Witwatersrand geographic location.[128]

4.4.2 Impact Mitigation

Impact mitigation entails avoiding, lessening, eliminating, compensating, and remedying environmental damage.[129] The methods for impact mitigation are integrated throughout all EIA processes, such as scoping and impact analysis

---

[119] Glazeswki *Environmental Law 294.*
[120] Morgan (2012) *IAPA* 9.
[121] UNEP *Environmental Impact Assessment* 55; Glazewski Environmental Law 294.
[122] Section 4.3 and 4.4 of this chapter.
[123] UNEP *Environmental Impact Assessment* 55.
[124] R Bisset and P Tomlinson "Monitoring and auditing of impacts" in P Wathern (ed) *Environmental Impact Assessment Theory* (1990)117.
[125] Beanlands "Scoping Methods." in Wathern (ed) *Environmental Impact Assessment Theory 4.*
[126] Makuch Pereira *Environmental and Energy Law* (2012) 505.
[127] *Harmony Gold Mining Company Ltd v Regional Director: Free State Department of Water Affairs and Others* (68161/2008]) [2012] ZAGPPHC 127 para 2.
[128] D Fig "Corrosion and Externalities: the socio-economic impacts of acid mine drainage on the Witwatersrand" in W Attwell, L Bank, P Naidoo, P Bond, I Buccus, J Daniel, D Fig, J Hamill and J Hicks *New South African Review 2: New paths, old compromises?* (2018) 303; Durand (2012) *JES* 41.
[129] Wood *Environmental Impact Assessment* 177.

statements and also form the basis for preventing impacts during the lifetime of projects such as mining.[130] According to Tinker et al., mitigation forms the foundation for EIA because mitigation measures are required throughout all EIA processes, that is, before approval of a project and during the implementation stages.[131]

In mining, for example, specific impacts like landslides and air and water pollution are unavoidable.[132] However, mitigating such impacts prevents or alleviates the consequences of the impacts and ensures for example, that mining wastes are treated reasonably, thereby preventing pollution of water sources.[133] From this perspective, the EMP plays a significant role by providing impact mitigation strategies and subsequent management to ensure that the EIA conditions and commitments by mining companies are being adhered to.[134] However, predicted impacts and methodologies initially followed to mitigate the effects may only sometimes work.[135] Therefore, the mitigation of impacts includes trade-offs that must not exceed project gains.[136]

4.4.3 Monitoring of Compliance and Enforcement

Compliance monitoring involves assessing whether developers adhere to the prevention and mitigation conditions stipulated in their EMPs.[137] Conditions for EIA compliance monitoring consist of scheduled inspections and reactive and compliance directives, among others.[138] Compliance enforcement for EIA ensures that project developers adhere to environmental obligations outlined in their EMPs.[139] Zaelke et al.[140] suggest that failure to comply with EIA emanates from a lack of enforcement mechanisms by regulators or enforcers of legislation.[141]

Compliance mechanisms may include enforcement directives.[142] Nonetheless, where developers fail to implement directives, compliance enforcement may consist of penalties or sanctions, which may involve withdrawing a right to mine

---

130 L Tinker, D Cobb, A Bond & M Cashmore "Impact mitigation in environmental impact assessment: paper promises or the basis of consent conditions?" *Impact Assessment and Project Appraisal* (2005) 265.
131 Tinker et al (2005) *IAPA* 265-266.
132 Wood *Environmental Impact Assessment* 260.
133 H Thompson *Water Law: a practical approach to resource management and the provision of services* (2006) 320; Department of Environmental Affairs Environmental Impact Assessment Strategy (2014) 21.
134 Tinker et al (2005) *IAPA* 267.
135 Tinker et al (2005) *IAPA* 267
136 Tinker et al (2005) *IAPA* 270.
137 D Zaelke, D Kaniaru & E Kruzìková *Making Law Work: Environmental Compliance & Sustainable Development* (2005) 44.
138 Zaelke et al *Making Law* Work 44.
139 Glazeswki Environmental Law 144.
140 Zaelke et al *Making Law Work* 44.
141 Durwood et al *Making Law Work* 44.
142 A du Plessis "Environmental Compliance and Enforcement Measures: Opportunities and Challenges of Local Authorities in South Africa" in L Paddock, D Qun, L J Kotzé, D L Markell, K J Markowitz& D Zaelke (eds) *Compliance and Enforcement in Environmental Law*: *toward more effective implementation* (2011) 380-381.

in the context of mining.[143] Enforcement of compliance can also be effected through civil and criminal sanctions, imposed whenever mining right holders do not adhere to administrative measures such as directives.[144]

After the EIA process, EIA must be evaluated to assess whether its implementation is effective.[145] As a result, Sadler asserts that the effectiveness of EIA forms an integral part of the EIA theory and process.[146] The Principles of EIA effectiveness are used to assess EIA effectiveness and are discussed below.

5 Measuring the Effectiveness of the Environmental Impact Assessment Process

Chanchitpricha and Bond define the effectiveness of EIA as assessing whether EIA has achieved its intended purpose.[147] This definition is borrowed from Sadler, who describes effectiveness as "how well something works or whether it works as intended and meets the purposes for which it is designed."[148] Furthermore, Wood suggests that the effectiveness of EIA does not depend so much on whether EIA is effective but on the factors that can make EIA effective or ineffective.[149] These factors include assessing whether the processes of EIA are satisfactorily undertaken and whether an ultimate goal to reduce environmental degradation is achieved.[150]

The principles used to measure the effectiveness of EIA are referred to as substantive, procedural, transactive, and normative effectiveness.[151] Substantive effectiveness analyses whether the EIA process achieves environmental objectives outlined by the policy or legislative framework.[152] Transactive effectiveness measures the time and cost delivery of the EIA process and efficiency.[153] This takes into consideration the adequacy of resources and personnel capacity.[154] Normative effectiveness analyses whether theory and process have contributed to the change in society's behavioural norms, indicating acceptance of the broad EIA mandate.[155]

---

[143] Du Plessis "Environmental Compliance and Enforcement Measures" in Paddock et al (eds) *Compliance and Enforcement in Environmental Law* (2011) 380-381.
[144] Glazeswki *Environmental Law* 144.
[145] Sadler (1996*) (IAIA)* 37.
[146] Sadler (1996) *(IAIA)* 37.
[147] C Chanchitpricha & A Bond "Conceptualising the Effectiveness of impact assessment processes" (2013) 43 *Environmental Impact Assessment Review* 65 66; M Cashmore, T Richardson, T Hilding-Ryedvik & L Emmerlin "Evaluating the effectiveness of impact assessment instruments: Theorising the nature and implications of their political constitution" (2010) 30 *Environmental Impact Assessment Review* 371-372.
[148] Sadler (1996) IAPA 36; Chanchitpricha & Bond (2013) *EIAR* 65-66.
[149] Wood *Environmental Impact Assessment* 7; Sadler (1996) IAIA 41.
[150] Sadler (*1996) IAIA* 37.
[151] Sadler (1996) *IAIA* 39.
[152] J Loomis & M Dziedzic "Evaluating EIA systems' effectiveness: A state of the art" (2017) 68 *Environmental Impact Assessment Review* 29 30 <http://dx.doi.org/10.1016/j.eiar.2017.10.005> (accessed 14/01/2023).
[153] Chanchitpricha & Bond (2013) *EIAR* 69; Loomis & Dziedzic (2017) *EIAR* 30.
[154] Chanchitpricha & Bond (2013) *EIAR* 69; Loomis & Dziedzic (2017) *EIAR* 30.
[155] Chanchitpricha & Bond (2013) *EIAR* 69; M Cashmore et al (2004) *IAPA* 296.

Procedural effectiveness analyses whether EIA is conducted in line with legislative provisions and scrutinises the actual EIA policy implementation practice results.[156] According to Cashmore,[157] the function of procedural effectiveness is two-fold. It first analyses the achievement of objectives and[158] secondly recommends adjustments to substantive procedures.[159] This latter function of effectiveness reflects EIA's cyclical or iterative nature, which analyses practice to improve substantive policy for better implementation.[160]

6 Conclusion

This chapter dealt with the definition of EIA and its theoretical and procedural aspects. It also discussed effectiveness principles to determine the level of EIA's effectiveness. Theoretically, the chapter has shown that the EIA is designed through multiple disciplines, such as planning and science, which are used in an integrated manner to evaluate impacts likely to emanate from the development of economic projects such as mining.[161] The chapter finds that even though the EIA theory evolved consequent to the EIA procedure, it still lays the conceptual foundation for undertaking the EIA procedure.[162]

The chapter further finds that the EIA procedure is carried out through a culmination of steps undertaken before project commencement. These steps establish measures to be implemented once the project begins and include impact monitoring, mitigation and compliance enforcement.[163] The chapter also finds that the successful implementation of the EIA procedure can lead to effective EIA, measured through the principles of effectiveness.[164]

For EIA to be operational on a national scale, it must be institutionalised through countries' legal systems or policies.[165] Consequently, legislation institutionalising EIA for a country constitutes specific substantive EIA.[166] Such legislation must establish administrative organs to implement the EIA procedure and to ensure that implementation is effective.[167] For example, even though legislation establishing the EIA process in South Africa is constructed upon theoretical principles

---

[156] Sadler (1996*) IAIA* 39; Chanchitpricha & Bond (2013) *EIAR* 66-67; M Cashmore *(2004) EIAR* 419.
[157] M Cashmore et al (2004) *IAPA* 296.
[158] M Cashmore et al (2004) *IAPA* 296.
[159] M Cashmore et al (2004) *IAPA* 296.
[160] Sadler (1996*) IAIA* 39.
[161] Section 1 of this chapter.
[162] Section 1 of this chapter.
[163] Section 4.4.1, 4.4.2 and 4.4.3 of this chapter.
[164] Section 5 of this chapter.
[165] Sadler (1996) *IAIA* 12.
[166] W du Plessis and J Nel "Driving Compliance to and Enforcement of South African Legislation by means of a Hybrid of "New" Environmental Governance Instruments" in L Paddock, D Qun, L J Kotzé, D L Markell, K J Markowitz& D Zaelke (eds) *Compliance and Enforcement in Environmental Law*: *toward more effective implementation* (2011) 260.
[167] Field *State Governance of Mining* 243; Glazewski *Environmental Law* 271-280.

discussed in chapter two of this research; its process is regulated and implemented according to South Africa's specific requirements.[168] Such requirements are discussed in the next chapter concerning the mining sector.

[168] J Ridl & E Couzens "Misplacing NEMA? A Consideration of Some Problematic Aspects of South Africa's New EIA Regulations" (2010) 5 Potchefstroom Electronic Law Journal 80 80-84.

Chapter 3: Regulation of Environmental Impact Assessment for Mining in South Africa

1 Introduction

This chapter discusses how the Environmental Impact Assessment (EIA) process is regulated and implemented within the South African mining sector. To achieve this purpose, the chapter outlines the South African constitutional provisions regarding the protection of the environment and the development of natural resources. Thereafter, the framework legislation emanating from the constitutional provisions regarding the development of natural resources and environmental protection is also discussed. The framework legislation delineates provisions regulating the use of EIA for the mining sector and outlines how those provisions must be implemented administratively.

2 The Constitutional Mandate for Environmental Impact Assessment

The Constitution of South Africa establishes in section 24(a) the people's right to an environment that is not harmful to their health and well-being.[169] This right is entrenched in the bill of fundamental human rights.[170] The entrenchment of the environmental right within the bill of rights makes it justiciable and binding on the state, its organs, and the natural and juristic persons.[171] The justifiability of the environmental right was established in the case of *Director: Mineral Development, Gauteng region, and Another v Save the Vaal Environment and Others (Save the Vaal Environment).*[172] Save the Vaal Environment was an activist Non-Governmental Organisation (NGO) for environmental rights.[173] The NGO had been denied the opportunity to make submissions opposing the granting of a mining right within the Vaal River by the Director of Mineral Development of the Gauteng Region.[174] By disallowing this consultative procedure, the Director of Mineral Development disregarded the consultative procedure in section 9 of the repealed Minerals Act,[175] which made consultations by interested parties a prerequisite.[176] The basis for the refusal was that the NGO did not have legal standing to enforce section 9 because it was not registered under the Companies Act,[177] through which registered companies gained the status of a legal entity.[178]

---

[169] Section 24 (a) Constitution of the Republic of South Africa,1996.
[170] Chapter 2 Bill of Rights, Constitution of the Republic of South Africa,1996.
[171] Sections 7(1), (2) and 8(1), (2) of the Constitution of the Republic of South Africa,1996; Kidd *Environmental Law A South African Guide* 34; Glazewski *Environmental Law* 84-85; A Du Plessis "Public Participation, Good Environmental Governance and Fulfillment of Environmental Rights" (2008) *Potchefstroom Electronic Law Journal* 5.
[172] *Director: Mineral Development, Gauteng region, and Another v Save the Vaal Environment and Others* 1999 (2) SA 709 (SCA).
[173] Para 4.
[174] Para 5.
[175] Minerals Act 50 of 1991 amended by Minerals Amendment Act 103 of 1993.
[176] Section 9 of the Minerals Act; Para 13. Although this was not explicit in the provision, the court said it was implied and could not be interpreted to disregard public participation.
[177] Companies Act 61 of 1973.
[178] Para 7.

However, the Supreme Court ruled in favour of Save the Vaal Environment.[179] The rationale for the ruling was that a refusal to allow the NGO to make presentations for matters likely to affect the environmental right violated the NGO's Constitutional mandate to protect the environmental right.[180] The denial was also held to have been contrary to the principles of natural justice in administrative law.[181]

The Constitution further establishes through section 24(b), a directive establishing legislative and other measures to protect the section 24(a) environmental right.[182] These measures include the avoidance of pollution and ecological degradation[183] and the promotion of justifiable economic and social development.[184] However, EIA is not explicitly articulated in the Constitution; instead, it is implied as one of the measures for use in the economic development of natural resources to protect the environmental right against factors such as pollution and ecological degradation.[185]

The section 24(b) directive has been criticised primarily for excluding other actions requiring environmental regulation and only providing for pollution and ecological degradation.[186] Nonetheless, Glazewski[187] cautions against narrowing down section 24(b), suggesting that the section implies that all other actions causing environmental damage must be avoided.[188] Section 24(b) has also been criticised as creating ambiguity and conflict by providing for environmental protection while simultaneously providing for the economic development of natural resources.[189] The reason for this criticism emanates from the contention that economic development of natural resources and environmental protection are two opposite imperatives that attract different considerations from the government.[190] Glazewski however, mentions that the conflict is merely hypothetical, meaning that section 24(b) targets the protection of both imperatives equally.[191]

One of the examples highlighting the preceding argument is highlighted in the National Development Plan (NDP).[192] The NDP recognises, on the one hand, the positive and significant impact mining has on the economy and recommends further

---

[179] Para 13.
[180] Para 20.
[181] Para 13 -20; Du Plessis (2008) *PELJ* 10-17. In addition, Du Plessis argues that the denial of such prescriptive procedure laid by the legislature regarding public participation amounts to the encroachment of the environmental rights provided by section 24(a) of the Constitution.
[182] Constitution of South Africa, 1996; L Kotzé "The conceptual contours of environmental constitutionalism" *Widener Law Review* (2015) 190-191; Glazewski *Environmental Law* 85; Kidd *Environmental Law A South African Guide* 20. According to Kidd and Glazewski, section 24 of the Constitution also constitutes a directive principle obligating the state to enforce socio-economic rights that promote economic and social development.
[183] Section 24(b)(i).
[184] Section 24(b)(i).
[185] Section 24(b) of Constitution of South Africa, 1996, read with NEMA Preamble and sections 2(4)(a)(ii),(iv); Ridl & Couzens "Misplacing NEMA?"(2010) 5 *PELJ 84.*
[186] Kidd *Environmental Law A South African Guide* 37.
[187] Glazewski *Environmental Law* 87.
[188] Glazewski *Environmental Law* 87.
[189] *Kidd Environmental Law* 24.
[190] Kidd *Environmental Law* 24.
[191] Glazewski *Environmental Law* 92.
[192] RSA The National Development Plan 2030.

expansion of the industry through beneficiation and manufacturing.[193] On the other hand, the NDP also acknowledges the exponential damage mining has on the environment, thereby creating a complex situation for the government regarding which imperative to prioritise.[194] An example of this complexity is coal mining, which is used for electricity generation and job creation in South Africa.[195] Yet, it also significantly contributes to air pollution leading to climate change and other health challenges to communities around the mining areas.[196]

Despite the conflict between economic and environmental imperatives, the NDP recommends obtaining a balance between the imperatives, emphasising that neither imperative should be advanced at the expense of the other.[197] This point was illustrated in the case of *Fuel Retailers Association of Southern Africa v Director-General Environmental Management Department of Agriculture, Conservation and Others.*[198] The Constitutional Court, in this case, highlighted that the constitutional imperative for socio-economic development safeguards the enjoyment of the human rights provided by the Constitution of South Africa.[199] That notwithstanding, the court emphasised that development must not be done at the expense of environmental protection.[200] In the context of EIA, Glazewski asserts that EIA addresses the disjuncture between economic development and environmental protection because EIA simultaneously safeguards economic growth and environmental protection.[201]

Based on the Constitutional mandate established through section 24(b), the South African government provides for the use of EIA through the National Environmental Management Act (NEMA)[202] and its implementation through the Mineral

---

193 RSA National Development Plan 211. The NDP states that the energy sector emanating from coal mining is responsible for the employment of millions of people and that the mining sector significantly contributes to foreign exchange earnings.
194 RSA National Development Plan 198 & 206.
195 RSA National Development Plan 206.
196 RSA National Development Plan 206. South Africa's primary source of electricity stems from coal, produced by the government-owned company Eskom. Eskom is the only electricity-producing company in South Africa. This situation makes South Africa dependent on coal mining, which intertwines electricity generation with coal mining waste. South Africa is also ranked as one of the largest carbon emitters worldwide, with emissions from electricity generation alone making up to 48 per cent of the country's emissions; Glazewski Environmental Law 547.
197 RSA National Development Plan 211.
198 *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management Department of Agriculture, Conservation and Environment Mpumalanga Province, and Others* Case CCT 67/06 [2007] ZACC 13. In this case, Fuel Retailers, an association was challenging the decision of the government to grant authorisation for the construction of a filling station in White River in Mpumalanga, alleging it will result in adverse environmental impact. The Constitutional Court highlighted that the constitutional imperative for socio-economic development serves the imperative for the enjoyment of human rights guaranteed in the Constitution. Nonetheless, the Court re-emphasized that the promotion of development requires the protection of the environment because development cannot exist upon a deteriorating environmental base.
199 Para 44-45.
200 Para 44-45.
201 Glazewski *Environmental Law* 291.
202 Act 107 of 1998 (NEMA).

and Petroleum Resources Development Act (MPRDA).[203] The legislative provisions emanating from NEMA and the MPRDA are discussed hereunder.

2.1 Environmental Impact Assessment Regulatory Provisions

As discussed in chapter one above,[204] NEMA being the overarching legislation for environmental matters, defines EIA through the Environmental Impact Assessment Regulations (EIA Regulations)[205] as; "a systematic process of identifying, assessing and reporting environmental impacts associated with an activity that includes basic assessment and scoping and an environmental impact report."[206] Consequently, activities requiring the use of EIA are categorised as listed activities.[207] These activities must use the EIA process to investigate impacts, define mitigation measures, and outline management strategies for consequent approval referred to as environmental authorisation.[208] Mining is classified as a listed activity requiring the use of EIA.[209] An environmental authorisation is required before the commencement of mining because of mining's inherent nature to create adverse environmental effects.[210]

Furthermore, as the overarching legislation for environmental matters, NEMA establishes regulatory provisions for state organs and lays down management structures for implementing such provisions.[211] Owing to this function, the Minister of Forestry, Fisheries, and the Environment (Minister responsible for environmental matters)[212] identifies the Minister of Mineral Resources and Energy as the competent authority over mining and prospecting activities.[213] A competent authority is the state's organ appointed to issue environmental authorisations integrating EIA and to administer the enforcement of conditions attached to environmental authorisations.[214] According to Glazewski, environmental authorisations form the

---

[203] Act 28 of 2002 (MPRDA).
[204] See section 2 of Chapter One.
[205] GN R 982 IN GG 38282 of 4-12-2014 as amended by GR 326 in GG 40772 7-04-2017(EIA Regulations). EIA Regulations were enacted through sections 24(5) and 44 of NEMA.
[206] Regulation 1 of the EIA Regulations.
[207] Sections 1& 24(2)(a) and 24(4A) read with 24(4)(b) of NEMA.
[208] Section 24 (4A) read with 24(4) (b) of NEMA.
[209] Sections 1, 24(2)(a) and 24C (2A).
[210] Section 24 (1) and (2) of NEMA.
[211] NEMA Long Title and sections 2 (1)(c) and 11 of NEMA; Kidd *Environmental Law A South African Guide, 36 &* 168.; NEMA long title delineates NEMA as providing "co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will provide cooperative governance and procedures for co-ordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws."Kidd refers to NEMA as framework legislation that defines management principles and regulates cooperative governance, and that the administration of environmental regulation is 'distributed amongst a large number of government organs', including DMRE; *Glazewski Environmental Law* (2000) 164. Glazewski describes a national environment Act's pivotal function to entail setting up legal mechanisms and institutional structures to implement those legal mechanisms.
[212] Section 1 of NEMA also defines "Minister" as the Minister responsible for environmental matters.
[213] Sections 24C (2A).
[214] Sections 1 and 24C (2A) read with sections 24(1), 24 (4A), and 24(5) NEMA; Regulation 5, read with regulation 6(5) EIA Regulations, requires all environmental authorisation applications submitted to the Minister of Mineral Resources and Energy to be decided by such Minister using powers of the competent authority.

bedrock for environmental management in South Africa in that they encompass detailed, cohesive foundational principles of generally accepted environmental practices.[215]

Where environmental laws have to be implemented by other organs falling outside the scope of NEMA, the Minister responsible for environmental matters must consult and enter into agreements with state organs responsible for carrying out environmental authorisations.[216] The purpose is to avoid duplication of functions[217] and to ensure better management of environmental laws being implemented by other organs of state falling outside the jurisdiction of NEMA.[218] Based on this requirement, the Minister responsible for environmental matters and the Minister of Mineral Resources and Energy entered into an agreement stipulated in section 50A NEMA as the One Environmental System (OES).[219] In terms of this agreement, the Minister responsible for environmental matters sets environmental regulatory provisions concerning mining activities for consequent implementation by the Minister of Mineral Resources and Energy.[220] In implementing NEMA regulatory provisions, the Minister of Mineral Resources and Energy issues environmental authorisations for mining,[221] while the Minister responsible for environmental matters is the appeal authority for environmental authorisations.[222]

Before this agreement, the MPRDA regulated and implemented legislation for environmental authorisations in line with NEMA principles.[223] Similarly, NEMA had regulatory provisions for issuing environmental authorisations for mining activities.[224] As a result, unnecessary duplication and conflict between the implementing departments of these laws occurred.[225] The duplication and conflict caused the negation of proper administration of environmental regulation.[226] The OES, therefore, established a working arrangement between the departments responsible for implementing environmental provisions, which are the Department of Mineral Resources and Energy (DMRE) (formerly the Department of Mineral

---

[215] Section 1 and Section 24(4A) NEMA; Sections 23(1) & 38A (1), (2) MPRDA.
[216] Section 24K (2) of NEMA.
[217] Section 24K (1) and (2) of NEMA.
[218] Section 24K of NEMA.
[219] Humby "One Environmental System": Aligning the Laws on the Environmental Management of Mining in South Africa" (2015) 33 *Journal of Energy & Natural Resources Law* 110.
[220] Section 50A(a) and (b) NEMA.
[221] Department of Mineral Resources *Government on the rollout of One Environmental System* <http://www.gov.za/government%E2%80%99s-one-environmental-system-ready-commence-8th-december-2014> (accessed 28-12-2022).
[222] Section 50A(c) NEMA.
[223] Repealed section 38(1) MPRDA; Humby (2015) *JENRL* 116.
[224] Humby (2015) *JENRL*116-117; *Maccsand (Pty) Ltd v City of Cape Town & Others* (2012) (4) SA 181 (CC).
[225] Humby (2015) *JENRL*113-114
[226] L Kotzé "Improving Unsustainable Environmental Governance in South Africa: The Case for Holistic Governance" (2006) 9 *Potchefstroom Electronic Law Journal* 1 2-3.

Resources)[227] and the Department of Forestry, Fisheries and the Environment (DFFE)[228] (formerly the Department of Environment, Forestry and Fisheries).[229]

2.2 The Mineral and Petroleum Resources Development Act as the implementing legislation for Environmental Impact Assessment

The MPRDA is the primary legislation regulating the development of minerals and petroleum in South Africa.[230] Its objectives include promoting economic growth through minerals and petroleum development, employment creation, and opportunities for historically disadvantaged persons.[231] Section 23 of the MPRDA endows the Minister of Mineral Resources and Energy with powers to issue mining rights and prospecting rights.[232] As discussed above,[233] the Minister of Mineral Resources and Energy is also granted powers to implement NEMA provisions regarding prospecting and mining.[234] Regarding mining, the Minister of Mineral Resources and Energy ensures that mining rights applicants have satisfactorily conducted an EIA environmental authorisation procedure before such applicants are granted mining rights.[235] The MPRDA further prohibits the granting of mining rights where conditions for environmental provisions have yet to be complied with.[236]

The case of *Mineral Sands Resources (Pty) Ltd v Magistrate and Another* was initiated after the OES, and it illustrates the court's role in reinforcing the powers of the Minister of Mineral Resources and Energy to implement environmental provisions regarding mining.[237] In this case, the Western Cape Division Court was requested to interpret conflicting provisions regarding the powers of inspectors for the (DMRE)[238] and the DFFE, referred to in the case as the Department of Environmental Affairs Forestry and Fisheries. The question was whether, based on the OES, the DFFE or DMRE inspectors had the mandate to conduct inspections over mining activities, in particular regarding the Mineral Sands Resources mining company.[239] The Western Division Cape Court ruled that the DMRE inspectors, and not DFFE inspectors had jurisdiction to conduct inspections over mining activities.[240] The ruling was made on the basis that section

---

[227] Department of Mineral Resources and the Energy Republic of South Africa.
[228] See Department: Fisheries and the Environment Republic of South Africa's official page <https:ww.dffe.gov.za/aboutus/department>.
[229] Department: Forestry, Fisheries and the Environment Republic of South Africa *Name of Department of Environment, Forestry and Fisheries to change on 1 April 2022* (31-03- 2021).
[230] Section 2 and 3 of the MPRDA.
[231] Section 2 of the MPRDA.
[232] Sections 23 and 17 of the MPRDA.
[233] See section 2.1 of this chapter.
[234] Section 38A of the MPRDA and section 50A (2)(b) of NEMA; See also section 2.1 of this chapter.
[235] Sections 38A (1) and 38A (2) of the MPRDA.
[236] Section 38A (2) of the MPRDA.
[237] *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal and Others (18701/16) [2017] ZAWCHC.*
[238] *Para 1.*
[239] Para 1.
[240] Para 98-99.

38A of the MPRDA bestows all powers relating to the implementation of mining authorisations on the Minister of Mineral Resources and Energy.[241]

Even with developments made through the OES, concerns have surfaced that the DMRE needs to be rightly positioned to enforce or implement environmental authorisations for mining.[242] The basis of these concerns is that the DMRE cannot sufficiently balance conflicting interests concerning promoting the mining sector while simultaneously ensuring that mining's harmful effects do not adversely affect the environment.[243] The position of the DMRE is regarded as self-regulation and is criticised as conflicting and contentious, and has often been likened to the fox guarding the hens' house.[244] One example supporting this view is the Human Rights Commission report of 2016,[245] which investigated the causes of the negative impacts of mines affecting the social and economic life of communities.[246] The report indicated that many environmental violations by mining companies were exacerbated by insufficient compliance enforcement by the DMRE on mining companies.[247]

3 Implementation of Environmental Impact Assessment substantive provisions before the commencement of mining

As discussed earlier in this work,[248] the substantive provisions of EIA are stipulated by NEMA under the generic term "authorisations," which is a process encompassing the undertaking of EIA requirements before project commencement.[249] As outlined by the EIA Regulations,[250] this procedure incorporates impact prediction, scoping, and decision-making.[251] Below is a breakdown of this process as it applies to mining.[252]

---

[241] Para 99-98.
[242] B Kengni "Intergovernmental Relations -One Environmental System" in L van Schalkwyk (ed*) Co-ordinating Governance for Mining: Streamlining Systems for Improved Intergovernmental Relations* (2022) 47; T Humby (2015) *JENRL* 128-129.
[243] Kengni "Intergovernmental Relations" in Van Schalkwyk (ed) *Co-ordinating Governance for Mining128-129.*
[244] Centre for Environmental Rights Zero Hour: *Poor Governance of Mining and the Violation of Environmental Rights in Mpumalanga* (2016) xiii.
[245] South African Human Rights Commission *National Hearing on the Underlying Socio-economic Challenges of Mining-affected Communities in South Africa* (3-12-2016).
[246] SAHRC *Challenges of Mining-affected Communities in South Africa* 45.
[247] SAHRC *Challenges of Mining-affected Communities in South Africa* 50.
[248] See sections 2.1 and 2.2 of this chapter.
[249] Section 24(4A) of NEMA.
[250] Regulation 1 of the EIA Regulations; Regulation 2 defines the purpose of the EIA regulations as including the regulation of procedure for preparation, evaluation, decision-making regarding commencement of activities subjected to EIA process.
[251] Kidd *Environmental Law A South African Guide* 268. This includes scoping, impact statement analysis and environmental management programme.
[252] Section 24O NEMA, read with Regulations 4 and 6(1) and (5) of EIA Regulations.

3.1 Impact Prediction for Mining

An impact prediction is carried out under the term Environmental Impact Assessment process (EIA process).[253] This process entails predicting impacts, mitigation, and closure outcomes for mining.[254] According to the EIA Regulations,[255] the process is conducted to ensure that the proposed project aligns with policy or legislative context.[256] Particulars to be integrated by the EIA process provide a description of predicted and cumulative impacts.[257] The description of predicted and cumulative impacts must further be accompanied by proposed measures to avoid, manage and mitigate those impacts during the mining lifecycle.[258] The process is carried out by an independent environmental assessment practitioner (EAP), who is appointed by the mining rights applicant.[259] The EAP must be competent and conversant with the MPRDA and NEMA provisions and objectives regarding EIA impact prediction for mining.[260]

3.2 Scoping and Environmental Impact Process Reporting (S&EIR)

Scoping in terms of NEMA and EIA Regulations integrates the identification of social and technical impacts concerning mining.[261] While technical scoping identifies, for example, air pollution from mining extraction activities like blasting and waste emissions or water pollution from acid mine drainage, social scoping determines how technical scoping impacts may directly affect the mining communities.[262]

An integral part of the social scoping process is public participation.[263] This step involves submitting technical scoping results to potentially interested parties for comments and concerns.[264] From a theoretical perspective, South Africa uses the public policy theory model approach to determine environmental impacts.[265] This is because the impact prediction stage encompasses scientific aspects with social factors emanating from public participation.[266] Moreover, as defined in the EIA Regulations, scoping is synonymous with the environmental impact reporting (EIR) process, a summary document for impact prediction.[267]

---

[253] Appendix 3 (1) of the EIA Regulations.
[254] Appendix 3 (1) of the EIA Regulations.
[255] Appendix (3) (2) of the EIA Regulations.
[256] Appendix 3 (2)(a).
[257] Appendix 3 (3)(1)(d)
[258] Appendix 3 (2)(c)(ii) of the EIA Regulations.
[259] Appendix 3 (a) of the EIA Regulations.
[260] Regulations 12 and 13 of the EIA Regulations.
[261] Regulation 21, and Appendix 2 of the EIA Regulations.
[262] Wood *Environmental Impact Assessment: A Comparative* Review 161-164
[263] SAHRC *Challenges of Mining-affected Communities in South Africa* 60-61.
[264] Appendix 2 EIA of the Regulations.
[265] See section 3.2 of Chapter Two.
[266] Du Plessis & Nel "Driving Compliance to and Enforcement of South African Legislation in Paddock et al. *Compliance and Enforcement in Environmental Law* 266; SAHRC *of Mining-affected Communities in South Africa* (2016) 61.
[267] Section 1 of the EIA Regulations.

3.3 Environmental Impact Analysis Report

Following an impact prediction and scoping process, an Environmental Impact Analysis (EIR) report, consisting of impact prediction and scoping results, is submitted to the Minister of Mineral Resources and Energy for decision-making.[268] The Minister of Mineral Resources and Energy may grant or refuse an application depending on whether or not the report satisfies the prescribed application requirements discussed above.[269]

4 Implementation of Environmental Impact Analysis during the operational stages of the mines

Following the granting of an environmental authorisation and mining right by the Minister of Mineral Resources and Energy, the mining right holder is mandated to monitor, mitigate and remediate predicted mining impacts during the operational stages of the mine.[270] The Environmental Management Programme (EMP) provided in section 24N of NEMA is used to achieve this purpose. The EMP is submitted alongside the EIR for decision-making, with the primary objective of informing the Minister of Mineral Resources and Energy on how the predicted EIA impacts will be monitored when the mine commences.[271]

The EMP provides a framework for monitoring and managing risks and impact mitigation strategies to be implemented throughout the operational stages of the mining activity.[272] According to Du Plessis and Nel, the EMP's objective serves as a commitment by the mining right holder to implement the management and mitigation actions and to account to the government whether compliance to such actions is achieved. [273]

The EIA Regulations further expand on conditions regarding the management, monitoring, mitigation, and auditing of compliance by the mining rights holders and the Minister of Mineral Resources and Energy. These conditions are discussed hereunder.

4.1 Monitoring of Mining Activities

The Environmental Impact Assessment and Management Strategy by the DFFE encapsulates the EIA monitoring process as involving ongoing evaluation of pre-determined objectives and indicators.[274] In the context of EIA Regulations, the

---

[268] Regulation 24 of the EIA Regulations.
[269] Regulation 24 of the EIA Regulations; See also sections 3.1 and 3.2 of this chapter.
[270] Section 25 (2)(e) of the MPRDA; UNEP *Environmental Impact Assessment* 54.
[271] Regulations 26(d) (iv &(e) and Appendix 4 of the EIA Regulations.
[272] Section 24N of NEMA read with Appendix 4(1)(f)(i) of the EIA Regulations. This includes planning and design, pre-construction and construction activities, and rehabilitation of the environment. Impact management actions entail actions to avoid, modify, remedy, control or stop an action, activity, or process which caused pollution or environmental degradation.
[273] Du Plessis & Nel "Driving Compliance" in Paddock et al. *Compliance and Enforcement* 268.
[274] Department of Environmental Affairs *Environmental Impact Assessment and Management Strategy* 2014 177 < https://cer.org.za/wp-content/uploads/2016/10/ENVIRONMENTAL-IMPACT-ASSESSMENT-AND-MANAGEMENT-STRATEGY-1.pdf (accessed 31-06-2022).

holder of an environmental authorisation is required to monitor the implementation of mitigation measures outlined in the EMP.[275] To achieve this, the mining right holder must design and submit methods and strategies to monitor the performance of mitigation measures.[276] The mining right holder must also indicate the intervals at which the monitoring of impacts is designated and identify persons responsible for monitoring.[277]

4.2 Mitigation of Mining Impacts

NEMA requires the holder of the mining right to mitigate all environmental impacts from the mining activity as provided by the EMP.[278] As a result, the mining right holder is responsible for environmental effects like ecological degradation from mining operations and air and water pollution, requiring pumping and treatment of polluted extraneous water.[279] The mining right holder must also rehabilitate the environment to ensure the mining area is returned to its natural or predetermined state.[280]

4.3 Compliance and Compliance Auditing

While compliance relates to adherence and implementation of prescribed objectives, such as monitoring, mitigation, and remediation of mining impacts, compliance auditing verifies the extent of compliance to enhance performance.[281] It may also be used cyclically to improve the terms of the EMP.[282] The mining right holder must monitor and audit compliance with the EMP requirements, and also develop a program for compliance reporting.[283]

The mining right holder must also engage an independent environmental auditing expert to prepare a compliance audit report.[284] This report is thereafter submitted to the Minister of Mineral Resources and Energy, indicating first the level of compliance with the EMP by the mining right holder.[285] Secondly, the report demonstrates how the EMP will be used to sufficiently provide for the prevention and mitigation of environmental impacts on an ongoing basis.[286] Thirdly, the compliance audit report must outline shortcomings concerning compliance, such as insufficient mitigation of the existing environmental effects and provide recommendations that will be adopted to rectify the reported shortcomings.[287] The recommendations are subsequently adopted in the EMP as amendments.[288] Lastly, the mining right holder must indicate

---

[275] Section 24N (7) NEMA, read with Appendix 4 (g) and (k) of the EIA Regulations.
[276] Section 24N (7) NEMA, read with Appendix 4 (g) and (k) of the EIA Regulations.
[277] Section 24N (7) NEMA, read with Appendix 4 (h) and (i) of the EIA Regulations.
[278] Section 24N(2)(g) NEMA.
[279] Section 24N (7)(e) NEMA.
[280] Section 24N (7)(e) NEMA.
[281] Glazewski Environmental Law in South Africa 294-295.
[282] Glazeswki Environmental Law in South Africa 294-295.
[283] Regulation 34(1) EIA and Appendix 4 (l) of the EIA Regulations.
[284] Regulation 34 (1)(b) of the EIA Regulations.
[285] Regulation 34 (2)(b) of the EIA Regulations.
[286] Regulation 34(1)(a) and (b) read with Appendix 6(2)(a) of the EIA Regulations.
[287] Regulation 34 (4) of the EIA) Regulations.
[288] Regulation 34 (4) of the EIA Regulations.

intervals to submit an environmental compliance audit report to the competent authority[289] within intervals not exceeding five years.[290]

Where the mining right holder fails to implement the EMP conditions, the Minister of Mineral Resources and Energy enforces compliance to the extent of the failure.[291] Inspectors appointed by the Minister undertake the enforcement of compliance.[292] Furthermore, the Minister of Mineral Resources and Energy may also withdraw an environmental authorisation where the mining right holder breaches the environmental authorisation conditions.[293] The Minister may also refuse to renew the mining right where the mining right holder is in default of environmental conditions stipulated in the environmental authorisation.[294]

5 Conclusion

This chapter has provided substantive legislative provisions regarding the implementation of EIA for mines in South Africa. The discussions in this chapter highlight that the environmental protection legislative provisions, which integrate the use of EIA, emanate from the Constitutional mandate which requires the state to develop legislative structures to protect environmental rights while developing natural resources.[295] The chapter finds that NEMA provisions give effect to this constitutional mandate by enacting provisions governing environmental protection that include the use of EIA for the mining sector.[296] Nonetheless, findings in this chapter highlight that the EIA provisions enacted by NEMA for the mining sector are not implemented by NEMA.[297] Instead, such provisions are implemented by the Minister of Mineral Resources and Energy, who is appointed by the Minister responsible for environmental matters as the competent authority for mining.[298]

Concerning the EIA provisions for mining, the EIA procedure as outlined by the EIA Regulations is two-fold, first, it requires the mining rights holders to identify anticipated negative effects mining may cause on the environment before the commencement of the mines for consequent mining authorisation. Secondly, it requires the mining rights holders to suggest suitable methodologies for monitoring, mitigating and remedying of the mining impacts during the operational stages of the mines.[299] The mining rights holders implement these strategies during the operational stages of the mines to ensure that the mining activities do not cause adverse effects to the environment.

---

[289] Regulation 26 (g) of the EIA Regulations.
[290] Regulation 26 (e) of the EIA Regulations.
[291] Section, 28(4), 31D (2A) and (3) of NEMA.
[292] Section 31BB NEMA.
[293] Section 47(2) of the MPRDA.
[294] Section 24(3) MPRDA.
[295] See section 2 of this chapter.
[296] See section 2 of this chapter.
[297] See sections 2.1 and 2.2 of this chapter.
[298] Section 2.1 and 2.2 of this chapter.
[299] Section 3 and 4 of this chapter.

Based on the regulatory and implementation provisions discussed in this chapter, the ensuing chapter discusses the effectiveness of EIA within the South African mining sector. As discussed in chapter one,[300] the objective is to analyse whether EIA provisions highlighted in this chapter are adhered to by mining companies during the operational life of the mines. The other basis is to analyse whether the DMRE is successfully enforcing EIA compliance over mining companies.[301]

[300] Section 3 and 5 of Chapter One.
[301] Section 3 and 5 of Chapter One.

Chapter Four: Analysis of the Effectiveness of Environmental Impact Assessment for Mines in South Africa

1 Introduction

Chapter two of this research discussed the theoretical and procedural underpinnings for the Environmental Impact Assessment (EIA) for projects like mining. It also discussed principles of effectiveness regarding EIA, indicating measures to be undertaken to evaluate whether EIA is achieving its purpose. Chapter three further provided the legal framework governing the regulation and implementation of EIA within the mining sector in South Africa. As a result, chapter two and three demonstrated a link between EIA formation and its regulation and implementation for mines in South Africa.

This chapter analyses whether the EIA legal provisions discussed in chapter three are implemented effectively in line with procedural effectiveness principles discussed in chapter two.[302] The analysis is in line with Sadler's view, which posits that the effectiveness of EIA is best analysed from the legislative framework within which it operates to determine whether it achieves its intended results.[303] Based on Sadler's view and the research objectives outlined in chapter one,[304] the chapter primarily focuses on how EIA is implemented during the mining operational stages. Case studies, commentaries and judicial precedents constituting operational experience are used as the basis for evaluating EIA practice[305] to determine whether EIA is successfully implemented during operative mining stages. The inquiry into case studies is guided by Woods's premise,[306] which posits that the effectiveness of EIA does not depend so much on whether EIA is effective but on the factors that render EIA effective or not effective.[307]

The procedural effectiveness is used to analyse the effectiveness of EIA, notwithstanding recommendations by Cashmore for using either substantive effectiveness as the basic test of effectiveness[308] or for combining all effectiveness categories.[309] Procedural effectiveness is considered because it analyses the actual EIA policy implementation practice

---

[302] See section 5 of Chapter Two.
[303] Sadler (1996*) IAIA* 37-38; see section 5 of Chapter Two.
[304] Section 5 of Chapter One.
[305] Field *State Governance of Mining* 250. According to Field, commentaries on laws reform and civil society reports help provide insight into EIA implementation by mines; Sadler (1996*) IAIA* 37.
[306] Wood *Environmental Impact Assessment: theory and practice* 7; See section 5 of Chapter Two.
[307] Wood *Environmental Impact Assessment: theory and practice* 7.
[308] Cashmore et al. (2004) *IAPA* 296.
[309] Cashmore et al. *EIAR* (2010) 377; Section 5 chapter Two of this dissertation highlighted that the EIA effectiveness considers theory and practice to determine whether the EIA is attaining its purposes substantively, procedurally, transactively, and normatively.

results,[310] as opposed to substantive effectiveness, which according to Cashmore[311] and Loomis and Dziedzic,[312] is theoretical and difficult to analyse because of its hypothetical nature.[313]

The impetus for this analysis is because of the high volumes of mines, reportedly causing adverse environmental impacts during the operational stages of mines in South Africa.[314] These adverse environmental effects occur despite the environmental laws which include EIA provisions discussed in chapter three of this dissertation regarding prevention, mitigation, and remediation of impacts during the operational stages of the mines.[315] Consequences emanating from the adverse effects of mining include, among others, the growing number of mines abandoned during the existence of EIA, by mining companies that have failed to mitigate impacts during the operational stages of mines.[316] One of the negative environmental effects emanating from abandoned mines is mining waste, which results in pollution to water sources.[317] Other consequences occurring during the operative stages of the mines also include mining waste, air pollution, and water pollution which emanates from acid mine drainage.[318]

To highlight the preceding point regarding the growing number of abandoned mines; the report of the Auditor General of South Africa reported that in 2009, South Africa had 5906 unrehabilitated abandoned mines.[319] In terms of the report, most of the mines were abandoned before the coming into operation of the repealed Minerals Act of 1991[320] because, during that period, South Africa did not have sufficient legal provisions concerning the management of the environmental impacts

---

[310] See section 5 of Chapter Two.
[311] Cashmore et al. (2010) *EIAR* 377.
[312] Loomis & Dziedzic (2017) *EIAR* 31
[313] Loomis & Dziedzic (2017) *EIAR* 31.
[314] K Odeku (2017) *Environmental Economics* 26-27; SAHRC *Challenges of Mining-affected Communities in South Africa* (2016) 5 & 45.
[315] Glazewski *Environmental Law* 143. Glazewski questions why South Africa is still plagued with an array of environmental degradation despite the laws governing environmental protection and further posits the problem may lie in the implementation of laws; SAHRC *Challenges of Mining-affected Communities in South Africa* (2016) 45; section 184 (1) Constitution of the Republic of South Africa, 1996; CER Poor Governance of Mining and the Violation of Environmental Rights 33.
[316] Auditor-General South Africa *Follow-up Performance Audit at the department of Mineral Resources and Energy on the rehabilitation of derelict and ownerless mines* (2022)"< Follow-up performance audit at the Department of Mineral Resources and Energy.pdf (agsa.co.za) >; SAHRC *Challenges of Mining-affected Communities in South Africa* (2016) 45; *Harmony Gold Mining Co Ltd v Regional Director and Others (2014) (3) (SCA).*
[317] SE Mhlongo & F A-Dacosta "A review of problems and solutions of abandoned mines in South Africa" (2015) 30 *International Journal of Mining, Reclamation and Environment* 279 279-281; S Naidoo *Acid Mine Drainage in South Africa: Development Actors, Policy Impacts, and Broader Implications* (2016) 21; Parliamentary Monitoring Group *ATC181107; Report of the Portfolio Committee on Mineral Resources on its oversight visit Northwest and Gauteng on the 13-14 September 2018, dated 07 November 2018" (2018*) <https://pmg.org.za/tabled-committee-report/3620/ >; Business and Human Rights Centre South Africa "Federation for a Sustainable Environment says Mintails' failure to rehabilitate uranium mines pits endangering local community; company denies liability" (19 -09-2018); Department of Water and Sanitation Gauteng Region: *Upper Vaal Water Management Area Compliance Inspection for Mintail Mining SA (Pty) Ltd Mogale (2013/2014) 9*-13.
[318] S Naidoo *Acid Mine Drainage in South Africa (*2016) 34-37.
[319] Auditor-General South Africa *Report of the Auditor-General to Parliament on a performance audit of the rehabilitation of abandoned mines at the Department of Minerals and Energy* (02 2009).
[320] Act 50 of 1991.

of mining, rehabilitation, and closure.[321] Reference to the statistics of 2009 is essential; because it assists in indicating the extent to which EIA has been successful for mining since the report was released, during the existence of the National Environmental Management Act (NEMA)[322] and the Mineral and Petroleum Resources Development Act (MPRDA).[323]

Nonetheless, in 2016, the Human Rights Commission reported that the number of abandoned mines had reached 6000, ostensibly indicating a growth of 94 mines to the Auditor-General's report of 2009.[324] Further in 2021, the number of abandoned mines had grown to 6100 as was highlighted by the Auditor-General Follow-up Performance Audit Report of 2021 (2021 Performance Audit Report).[325] Based on the Auditor-General's report of 2009, the Human Rights Commission Report of 2016, and the 2021 Performance Audit Report, South Africa had accumulated a total of 184 abandoned and unrehabilitated mines from 2009 to 2021 during EIA's existence.

2 Compliance with Environmental Impact Assessment by mines in South Africa

In the South African mining context, the Environmental Management Programme (EMP), discussed in chapter three of this research,[326] discusses requirements for implementing EIA during the operational stages of the mines.[327] These requirements include the obligations and responsibilities of the mining rights holders to monitor, mitigate, remediate and rehabilitate adverse effects of mining activities to ensure that negative impacts of mines do not adversely affect the environment.[328] The following section discusses how far mining companies are monitoring, mitigating and remediating the adverse effects of mining activities in line with the requirements of the EMP.[329]

2.1 Monitoring and mitigation of mining activities by mining rights holders

Although some mining companies are reportedly complying with their mitigation obligations,[330] some reports indicate that many mining companies need to sufficiently adhere to mitigation plans provided by their respective EMPs.[331] For instance,

---

[321] AGSA Follow-up *Performance Audit* 3; See Section 2 of Chapter One.
[322] Act 28 of 2002; SAHRC *Challenges of Mining-affected Communities in South Africa* 76-77. One of the leading questions by the SAHRC was whether compliance levels during NEMA's existence are growing.
[323] Act 107 of 1988.
[324] SAHRC *Challenges of Mining-affected Communities in South Africa* 28.
[325] *AGSA Follow-up Performance Audit 7*; Auditor-General South Africa "Auditor-General calls for stricter management in rehabilitating abandoned mines and mine openings (31-03-3022)."< 2022 MEDIA STATEMENT (Derelict and Ownerless Mines Performance Report) FINAL (002).pdf (agsa.co.za)> (accessed 10-02-2023).
[326] Section 24N of NEMA; See section 3.3 of Chapter Two.
[327] Section 24N(1A) of NEMA.
[328] Section 24N of NEMA.
[329] See section 4 of Chapter Three.
[330] Pan African Resources "Integrated Annual Report for the year ended 30 June 2022" (2022) 37 <Integrated-annual-report-2022.pdf (panafricanresources.com)> (accessed 10-02-2023) The Pan African Resources operate various mines consisting of Evander, New Consort and Fairview mines in South Africa. In its 2022 report, the company highlighted that it complied with its EMP obligations and further submitted such reports to the DMRE; SAHRC *Challenges of Mining-affected Communities in South Africa* 75-76.
[331] Harvard Law School International Human Rights Law Clinic *The Cost of Gold: Environmental, Health and Human Rights Consequences of Gold Mine in South Africa's West and Central Rand* (2016) 19<Tutaev Design 01-09-2016 (harvard.edu)>(accessed

in the case of *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company,*[332] the Minister of Water Affairs and Forestry, now the Minister of Water and Sanitation, issued a directive to Stilfontein Gold Mining Company (Stilfontein Gold Mining) to monitor and mitigate the risk of water pollution for the mine's designated area.[333] Stilfontein Gold mining was operating within the Klerksdorp, Orkney, Stilfontein and Hartebeestfontein (KOSH) gold mining area, sharing the mining geographical area with nearby mining companies.[334] Stilfontein Gold mining and other mines operating within the KOSH area were required to monitor the likelihood of polluted water overflow from mining activities.[335] The mines were also required to mitigate the eventual overflow of polluted water and its contamination of clean water sources by pumping underground water daily.[336]

Stilfontein Gold Mining did not comply with the directive[337] and at that point, the Minister of Water and Sanitation obtained a court order compelling Stilfontein Gold Mining to pump the polluted water.[338] Nonetheless, Stilfontein Gold mining did not comply with the court order, alleging that the Order did not stipulate how much water it was required to pump.[339] Furthermore, Stilfontein Gold mining attempted several measures to evade the responsibility for pumping polluted water, first by declaring the company insolvent; when that failed, the company's directors all resigned to escape liability.[340] The court ruled that Stilfontein Gold mining should have complied with the directive by pumping out polluted water to mitigate acid drainage pollution to clean water sources.[341] According to the court, compliance by Stilfontein would ensure that mining companies did not disregard their environmental obligations stipulated by the Constitution, NEMA, the MPRDA, and the National Water Act.[342] It would also combat the impression that mining companies were permitted by law to exploit the country's minerals for profit during the active stages of the mines at the expense of the environment and walk away without taking due responsibility.[343]

Furthermore, in 2016, in the case of *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal and Others,*[344] Mineral Sands Resources Mining company (Mineral Sands) was granted a mining right by the Department of

---

31-1-2023);CER *Poor Governance of Mining and the Violation of Environmental Rights* 33; SAHRC *Challenges of Mining-affected Communities in South Africa* 9.

[332] *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company and Others* [2006] JOL 17516 (W).

[333] Para 13.3.

[334] Para 2; Harvard International Human Rights Law Clinic "Consequences of Gold Mines in South Africa" 23 Active mines are required to pump underground water to prevent decanting and accumulation of contaminated water from gold tailings, which can lead to acid mine drainage. Acid mine drainage is harmful to water sources and can harm human life and plants.

[335] Para 2.

[336] Para 2.

[337] Para 13.2.

[338] Para 13.3.

[339] Para 13.3.

[340] Para 16.3.

[341] Para 16.9.

[342] Para 16.9; National Water Act 36 of 1998.

[343] Para 13.4-16.9.

[344] *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal and Others* (18701/16) [2017] ZAWCHC.

Mineral Resources and Energy (DMRE) (which was then DMR) to mine heavy mineral sands.[345] Mineral Sands had also been granted an environmental authorisation and an approved EMP. However, the DMRE found upon inspection that, following the granting of a mining license, Mineral Sand Resources company had violated the EMP conditions by conducting mining contrary to the EMP stipulated method.[346] This method, among others, consisted of disposing of waste in a manner contrary to the specified method outlined in the EMP.[347]

One negative environmental consequence of the unauthorised mining methods was a falling cliff that could have been avoided if Mineral Sands had operated according to the stipulated EMP conditions and monitored consequential impacts.[348] Although Mineral Sands subsequently amended the EMP, which the DMRE approved,[349] inspectors from the Department of Environment Forestry and Fisheries (now Department of Forestry, Fisheries and the Environment DFFE) identified a series of other EMP violations.[350] However, these violations could not be addressed adequately because of conflict between the DFFE and the DMRE about which department had jurisdiction to inspect them.[351] Thus, the Mineral Sands case revealed institutional problems between the DMRE and the DFFE despite the One Environmental System (OES) earlier discussed, which attempted to enhance institutional efficiency between the DFFE and the DMRE.[352]

2.2 Remediation of mining impacts during the mining lifetime

Besides the requirement for mining rights holders to monitor and mitigate environmental impacts from mining activities, the EMP provides for mining rights holders to remediate the harmful environmental impacts mining has on natural resources such as land, the atmosphere, and water.[353] Although remediation is part of mitigation and is often associated with mine closure, its focus spans mitigation by requiring reparation or restoration of the mining's harmful impacts during the operational stages of the mines.[354]

---

345 Para 45-47.
346 Para 54.
347 Para 51.
348 Para 64.
349 Para 65.
350 Paras 67-77.
351 Para 98.-99.
352 SAHRC *Challenges of Mining-affected Communities in South Africa* 89; Mujuru and Mutanga *Management and Mitigation of Acid Mine Drainage in South Africa: Input for Mineral Beneficiation in Africa* (2016) 141-143.
353 Section 24N(2)(g)(ii) of NEMA.
354 B Kengni and H Mostert "Regulation and remediation of the impacts of mine wastes on land and water in South Africa" (2021) 40 Journal *of Energy & Natural Resources Law* 337 340-342; Section 24N(2)(g)(ii) NEMA; Section 45 of the MPRDA. Though remediation is often associated with mine closure, the EMP, which implements EIA conditions, requires mining companies to remediate mining impacts during the mining lifespan.

It must be noted that even though other mining companies may comply with their obligations to remediate mining impacts,[355] concerns that mine rights holders still need to comply with this requirement still surface.[356] These concerns are validated by a growing number of abandoned mines discussed earlier despite the EIA remediation provisions.[357] Reports indicate that the mining companies evade their remediation obligations during the mine's operational stages and abandon such mines when they are no longer productive.[358] The case of Stilfontein Mining, earlier discussed,[359] indicates a mining right holder's attempt to avoid mitigating and remediating mining impacts during the operational stages of the mine by closing the mine prematurely[360] to avoid costs associated with mitigating and remediation liabilities.[361]

The problem is that such mines impose substantial rehabilitation costs on the government when the government cannot find owners.[362] This is because the government is responsible for rehabilitating abandoned mines to prevent the far-reaching consequences of abandoned mines.[363] As discussed above, these consequences include air pollution, land degradation, and acid mine drainage pollution to water sources.[364] For instance, the Mintail Gold Mining (Pty) Ltd mine violated many of its environmental obligations during its lifetime and ultimately closed in 2018 through liquidation.[365] As a result of closing through liquidation, the mine circumvented obligations for remediation of mining impacts and is now regarded as an unrehabilitated abandoned mine.[366]

---

[355] Pan African Resources "Integrated Annual Report for the year ended 30 June 2021" (2021) 27.
[356] O Lwabukuna "Interrogating and Reviewing Legal and Policy Frameworks Governing Acid Mine Drainage in South Africa" in M. Mujuru and S Mutanga *Management and Mitigation of Acid Mine Drainage in South Africa* (2016) 131-132; CER *Poor Governance of Mining and the Violation of Environmental Rights* 33.
[357] See section 1 of this chapter.
[358] Business and Human Rights Centre South Africa "Federation for a Sustainable Environment says Mintails' failure to rehabilitate uranium mines pits endangering local community; company denies liability" (2018).
[359] Para 16.3; See also Section 2.1 of this chapter; Lwabukuna "Interrogating and Reviewing Legal and Policy Frameworks" in Mujuru and Mutanga *Management and Mitigation of Acid Mine Drainage* 132.
[360] Para 13.4.
[361] Para 16.3.
[362] Section 46 of the MPRDA; Lwabukuna "Interrogating and Reviewing Legal and Policy Frameworks" in Mujuru and Mutanga *Management and Mitigation of Acid Mine Drainage* 131.
[363] Section 46 of the MPRDA.
[364] Section 46 of the MPRDA; Kengni and Mostert (2021) *JENRL* 338.
[365] Department of Water and Sanitation Gauteng Region: *Upper Vaal Water Management Area Compliance Inspection for Mintail Mining SA (Pty) Ltd Mogale* 9-13. The mine evaded mine closure requirements, which in terms of section 43 of the MPRDA, obligate mining right holder to remediate and rehabilitate mining impacts before closure certificates may be granted; section 56 of MPRDA provides for the lapsing of the mineral right where the holder is liquidated or sequestrated or is abandoned.
[366] Parliamentary Monitoring *Group Report of the Portfolio Committee on Mineral Resources on its oversight visit Northwest and Gauteng* 2018). The Portfolio Committee recommended that the DMRE ought to initiate legislative processes to close gaps between insolvency, company and mining laws to ensure that mining right holders pay for their environmental damages.

2.3 Compliance with Environmental Impact Assessment Requirements as a measure to enhance the effectiveness

Compliance is crucial to implementing EIA as it can prevent adverse environmental impacts and assist in determining the extent of EIA's effectiveness.[367] To indicate the level of compliance, mining companies must submit audit reports outlining the achievement of mitigation and remediation of impacts.[368] For instance, the 2021 reports for Evander, New Consort, and Fairview South African mines indicate that they complied with their 2021 EMPs obligations.[369] The mines also reported having submitted their compliance reports to the DMRE.[370] The problem is that these reports are not published by the DMRE, making it difficult to ascertain the veracity of the compliance alleged by mines.[371]

As a result, non-compliance by mines regarding EIA conditions is one of the significant problems plaguing the mining sector in South Africa, ultimately leading to the ineffectiveness of EIA.[372] The Centre for Environmental Rights in 2016 shed light on this problem by reporting many EMP violations by mines in Mpumalanga.[373] The report indicated that such mines often evade their EIA compliance obligations during the mines' operational stages.[374] As already discussed,[375] such mines are eventually abandoned with the objective of mining rights holders to evade closure costs which accumulated because of impacts that were not mitigated throughout the mining operational stages.[376]

3 Enforcement of the Environmental Impact Assessment over mines by the Department of Mineral Resources and Energy

There are various ways through which the DMRE is required to ensure that mines comply with their EMP's obligations. These include administrative scheduled or reactive inspections, directives, sanctions or fines, and civil or criminal proceedings when mines are not complying with their environmental commitments.[377] However, the DMRE has been

---

[367] Zaelke et al (2005) *Environmental Compliance and Sustainable Development* 47.
[368] Section 24N (7)(d) of NEMA; Regulation 34(1)(a) EIA Regulations; Appendix 4 (l) EIA Regulations; See also section 4.3 of Chapter Three.
[369] Pan African Resources "Integrated Annual Report for the year ended 30 June 2021" (2021). 27
[370] Pan African Resources "Integrated Annual Report for the year ended 30 June 2021" (2021) 27.
[371] CER *Poor Governance of Mining and the Violation of Environmental Rights* 69. According to the Centre for Environmental Rights, the other complexity emanates from the law not making it mandatory for mining companies to publish compliance reports.
[372] Loomis & Dziedzic (2017) *EIAR* 30. For instance, Loomis and Dziedzic emphasise that procedural practice effectively translates into adherence and compliance to applicable legislation.
[373] CER *Poor* Governance of Mining and the Violation of Environmental Rights 53-69
[374] CER *Poor Governance of Mining and the Violation of Environmental Rights* 33.
[375] Section 1 of Chapter Four.
[376] CER *Poor Governance of Mining and the Violation of Environmental Rights* in Mpumalanga 33; Parliamentary Monitoring Group *Report of the Portfolio Committee on Mineral Resources.* The members of the Portfolio Committee on Mineral Resources also made observations that mining companies are allowed to operate without adequate financial provisions. This hampers rehabilitation processes for mines whenever mines close before their estimated lifetime.
[377] Sections 47(1) (c), (2), (3) & (4) of the MPRDA read with Section 31D(2A) and (3) of NEMA: *M Kidd Environmental Law* 268; SAHRC *Challenges of Mining-affected Communities in South Africa* 73; See also section 4.3 of this chapter.

criticised for insufficient compliance enforcement on mining companies.[378] Some of these criticisms suggest that the DMRE makes insufficient scheduled or reactive inspections[379] and that such inspections are often erratic and inconsistent.[380]

The Mintails case discussed above,[381] which operated for the whole mining lifecycle without complying with its EIA conditions, is a relevant example of the previous criticism.[382] What is surprising about this case is that the DMRE disclosed to the Parliamentary Monitoring Group Portfolio Committee on Mineral Resources that the mine was operating without an approved EMP.[383] There is also no clarity why the DMRE did not apply other available remedies like the ones stipulated in section 47 of the MPRDA, which empower the Minister of Mineral Resources and Energy to withdraw or suspend mining rights.[384] One of the reasons advanced by the DMRE to the Parliamentary Monitoring Group Portfolio Committee on Mineral Resources regarding the Mintails mine was that the DMRE found it difficult to enforce compliance on the company.[385] Reasons advanced by the DMRE for this difficulty were caused by the company's frequent removal of directors, which made compliance follow-up difficult.[386] From Kidd's viewpoint, limited enforcement of EIA conditions despite explicit environmental authorisations undermines the EIA regulatory regime.[387]

Another criticism relating to limited compliance enforcement by the DMRE on mining companies is that the DMRE does not publicly avail compliance reports detailing the mines' level of compliance with their respective EMPs.[388] One of the reasons the DMRE is reported to withhold such information is to protect the share value of the mines, particularly mines which are publicly listed.[389] The reason advanced is that such disclosure may negatively affect the mines' share value if mines are not compliant with their EIA obligations.[390] Nevertheless, the non-disclosure of such information enables mining companies to evade public accountability for their violations. This situation, therefore, creates the impression that the DMRE is concealing EMP violations.[391] To address this problem, the Human Rights Commission in 2016 directed the

---

[378] CER "Full Disclosure: the truth about corporate environmental compliance in South Africa" (2015) 4; SAHRC *Challenges of Mining-affected Communities in South Africa* (2016); Parliamentary Monitoring Group: *Report of the Portfolio Committee on Mineral Resources.*

[379] CER *Poor Governance of Mining and the Violation of Environmental Rights 58;* Parliamentary Monitoring Group "*Report of the Portfolio Committee on Mineral Resources*.

[380] SAHRC *Challenges of Mining-affected Communities in South Africa* 73.

[381] Section 2.2 of this chapter.

[382] Section 2.2 of this chapter.

[383] Department of Water and Sanitation "*Gauteng Region: Upper Vaal Water Management Area Compliance Inspection for Mintail Mining* SA 9-13.

[384] Parliamentary Monitoring *Group Report of the Portfolio Committee on Mineral Resources;* Durand, (2012) *JAES* 24-43.

[385] Parliamentary Monitoring Group *Report of the Portfolio Committee on Mineral Resources.*

[386] Parliamentary Monitoring Group *Report of the Portfolio Committee on Mineral Resources.*

[387] Kidd *Environmental Law* (2011) 265.

[388] SAHRC *Challenges of Mining-affected Communities in South Africa* 50.

[389] *CER Poor Governance of Mining and Violation of Environmental Rights 53.*

[390] CER *Poor Governance of Mining and the Violation of Environmental Rights 53*; SAHRC *Challenges of Mining-affected Communities in South Africa* 69.

[391] CER *Poor Governance of Mining and the Violation of Environmental Rights* 66.

DMRE to make compliance monitoring information available to the public.[392] Nonetheless, the situation has not changed despite the Human Rights Commission's recommendation.[393]

4 The impact of the legislative provisions on Environmental Impact Assessment effectiveness

As previously discussed,[394] the effectiveness of EIA is analysed based on the legislative provisions or policy objectives that enable its implementation.[395] This section discusses whether the legislative requirements of EIA align with the fundamental effectiveness principles discussed in chapter two.[396] The section also discusses how the legal provisions regulating EIA impact EIA procedural effectiveness for the mining sector.

4.1 The Environmental Impact Assessment legislative provisions and effectiveness principles

The Environmental Impact Assessment Strategy[397] states that the law designed to implement EIA must be consistent with the EIA objectives to ensure that development does not negatively affect the environment.[398] Although the provisions of EIA concerning mining conform to the EIA tenets addressed in chapter two, the implementing model or mechanism for EIA practice needs to be revised to achieve EIA functions outlined in chapter three.[399]

As discussed in chapter three,[400] even though the Minister of Mineral Resources and Energy implements environmental provisions under NEMA as the competent authority, the main objectives designated for the Minister emanate from the MPRDA concerning the promotion of mining.[401] As a result, the divergent objectives between environmental regulation and the promotion of mining conflict and potentially hamper EIA's effectiveness.[402] The reason is that in practice, the DMRE's focus is more linear to promoting mining development, yet digressive towards EIA enforcement, which lessens

---

[392] SAHRC *Challenges of Mining-affected Communities in South Africa* 50-72.
[393] Department of Mineral Resources and Energy Annual Report of 2020/2021 <https://www.gov.za/sites/default/files/gcis_document/202210/dmre-annual-report-2020-21.pdf.> This report does not include compliance reporting concerning mines.
[394] Section 5 of Chapter Two.
[395] Chanchitpricha and Bond (2013) *EIAR* 67; Jay et al (2006) *EIAR* 289.
[396] Section 5 of Chapter Two.
[397] Eiams *The Environmental Impact Assessment and Management Strategy for South Africa*-2014.
[398] Eiams *Environmental Impact Assessment and Management Strategy for South Africa;* Alence and Mattes "Mineral Governance Barometer: Southern Africa" (2016) 1.
[399] Section 2, 3 and 4 of Chapter Three; Humby (2015) *JENRL* 110-111.
[400] Section 2, Chapter three of this dissertation.
[401] Section 2 of the MPRDA
[402] CER *Poor Governance of Mining and the Violation of Environmental Rights* 71; SAHRC *Challenges of Mining-affected Communities in South Africa* 89.

the effect of mining impacts.[403] Based on this perspective, the Human Rights Commission,[404] the Centre for Environmental Rights[405] strongly recommend the removal of the DMRE from implementing environmental regulations in the mining sector.[406] According to the Human Rights Commission, regardless of the attempts to harmonise institutional cooperation between the DMRE and the DFFE through the OES,[407] the separate management of environmental matters regarding mining imposes risks on the overall environmental governance within the country.[408]

4.2 Shortcomings of Legislative Provisions Affecting the Effectiveness of the Environmental Impact Assessment

Even though EIA may be provided by legislation, shortcomings emanating from such legislative provisions impair EIA's effectiveness. One of the shortcoming is lack of clarity concerning the type of outcomes expected during or following compliance monitoring.[409] In particular, the EIA provisions do not articulate the type of target results expected from mines concerning impact monitoring, mitigation, and remediation inspections.[410] Moreover, the EIA provisions do not compel mining companies to make their compliance enforcement reports accessible to the public.[411]

4.2.1 Lack of specific and verifiable impact monitoring, mitigation, and impact remediation outcomes by mining rights holders

The requirements for impact monitoring, impact mitigation, and impact remediation discussed in chapter three of this research require the mining right holders to provide methods, frequency, and programs for monitoring, mitigation, and remediation of impacts.[412] However, these requirements do not sufficiently outline the nature of outcomes expected to be met by mining rights holders following impact monitoring, mitigation, and remediation.[413] This is concerning because many mining companies claim to comply with their environmental obligations related to mitigation and remediation, yet the results paint a negative picture.[414]

---

[403] SAHRC *Challenges of Mining-affected Communities in South Africa* 72; Humby (2015) 33 *JENRL* 110-111; According to Humby, governments are always experimenting with models suitable for environmental governance for the mining sector. The danger with the regulations of environmental provisions by the DMRE is that the environmental impacts of mining may not be subjected to stringent regulation.
[404] SAHRC *Challenges of Mining-affected Communities in South Africa* 5.
[405] CER *Poor Governance of Mining and the Violation of Environmental Rights* 71.
[406] SAHRC *Challenges of Mining-affected Communities in South Africa* 5.
[407] SAHRC Challenges of Mining-affected Communities in South Africa 45.
[408] SAHRC *Challenges of Mining-affected Communities in South Africa* 45; Humby (2015) *JENRL* 128-129.
[409] *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal and Others* (18701/16) [2017] ZAWCHC para 67-77.
[410] CER *Poor Governance of Mining and the Violation of Environmental Rights* 71.
[411] CER *Poor Governance of Mining and the Violation of Environmental Rights* 71.
[412] See sections 4.1,4,2 and 4.3 of Chapter Three.
[413] CER *Poor Governance of Mining and the Violation of Environmental Rights* 53.
[414] *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal and Others (18701/16 [2017]) ZAWCH;* see section 2.1 on the discussions made regarding this case.

For example, in the case of Mineral Sand previously discussed,[415] reports produced to the court indicated that inspections carried out by the DMRE reflected that the Mineral Sands mining company had complied with its EMP conditions.[416] However, statements by the DFFE revealed many violations that Mineral Sands was still committing at that time.[417] The disparity and conflict between the results issued by the DMRE and the DFFE indicate a need for a specified outcome margin required from mines who submit their compliance enforcement reports.[418] Clearly determined outcomes will prevent conflict between the DMRE and the DFFE, and lead institutional efficiency, whose absence enables mining companies to evade statutory liability.[419]

4.2.2 Lack of clarity regarding the procedure for enforcing Environmental Impact Assessment compliance by the Department of Mineral Resources and Energy on mining companies

In addition to the lack of specified outcomes discussed above,[420] provisions of EIA outlined in sections 28(4) and 28(7) of NEMA discussed in chapter three do not articulate the standard procedure for carrying out compliance inspections and the order of imposing sanctions when mining companies fail to implement EIA directives.[421] Even though Section 31 (D) provides for the appointment of inspectors who enforce compliance and monitoring,[422] complaints have emerged that the DMRE carries out inspections in an unsatisfactory manner[423] through unscheduled, discrepant, and inadequate measures.[424] It is generally assumed that the primary cause for discrepant and inadequate assessments stems from a need for more capacity for DMRE.[425]

Furthermore, the absence of appropriate sanctions prevents the public from effectively reporting environmental violations because of the concern that such violations will not be attended to effectively.[426] It also intensifies mining companies'

---

[415] Section 2.1 of this chapter.
[416] Para 68.
[417] Para 64.
[418] SAHRC *Challenges of Mining-affected Communities in South Africa* 5.
[419] Mujuru and Mutanga *Management and Mitigation of Acid Drainage in South Africa* 141.
[420] Section 4.2.1 of this chapter.
[421] Section 24N (7) of NEMA; Regulation 34 EIA Regulations; Appendix 4(I) EIA Regulations; *Parliamentary Monitoring Group Report of the Portfolio Committee on Mineral Resources*.
[422] Section 31(D)(2A) (3) & (4) of NEMA.
[423] SAHRC *Challenges of Mining-affected Communities in South Africa* 76; *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal and Others* (18701/16 [2017]) ZAWCH para 64.
[424] SAHRC Challenges of Mining-affected Communities in South Africa (2016) 7.
[425] CER Environmental Compliance Monitoring and Enforcement at Mines; The Department of Mineral Resources and Energy's Performance during the Financial Years 2017 to 31 March 2019" < https://cer.org.za/wp-content/uploads/2020/12/DMRE-Environmental-CME-performance-FY2017-2019.pdf> (accessed 20-01-2023); SAHRC *Challenges of Mining-affected Communities in South Africa* 73.
[426] Ridl J & Couzens (2010) *PELJ* 86.

tendencies to operate despite obvious environmental violations.[427] According to Durand, this problem is exacerbated because the government's departments do not always take such mining companies to court.[428] For example, in the case of *Harmony Gold Mining Co Ltd vs Regional Director.*[429] Harmony Gold mining company was left to operate while disregarding directives to remedy acid mine water pollution and was brought to court following the company's closure.[430]

4.2.3 Lack of mandatory requirement for mining companies and the Department of Mineral Resources and Energy to make compliance reports to the public.

The EIA provisions are silent about making compliance reports publicly available to mining rights holders[431] which is a great disservice since these reports serve to advance tenets of environmental justice.[432] As a result, mining companies and the DMRE easily evade compliance procedures, knowing that the results will not be open to the public.[433] Furthermore, as discussed previously,[434] there is a general perception that the DMRE deliberately shields mining companies from publicly accounting for their non-compliance over concerns that the companies may lose their share value.[435] The effect of the absence of mandatory public disclosure of compliance reports undermines the mandate of EIA compliance enforcement.[436]

To remedy this problem, the Government compliance oversight institutions like the Human Rights Commission,[437] the Parliamentary Portfolio Committee on Mineral Resources,[438] the Auditor General of South Africa,[439] and prominent independent institutions such as the Centre for Environmental Rights[440] generally recommend that compliance results must be published by the DMRE to render mining companies accountable and enable easy monitoring by both the government and the general public.

---

[427] Department of Water and Sanitation Gauteng Region: *Upper Vaal Water Management Area Compliance Inspection for Mintail Mining SA (Pty) Ltd Mogale* 9-13; Parliamentary Monitoring Group *Report of the Portfolio Committee on Mineral Resources.*
[428] Durand (2012) *JAES* 38.
[429] *Harmony Gold Mining Co Ltd v Regional Director and others 2014(3) SA 149 (SCA)*
[430] Para 8-12.
[431] Section 24N (2) (e) of NEMA; CER *Poor Governance of Mining and the Violation of Environmental Rights* 66.
[432] SAHRC *Challenges of Mining-affected Communities in South Africa* 50.
[433] CER *Poor Governance of Mining and the Violation of Environmental Rights* 66.
[434] Section 2.3 of this Chapter
[435] CER *Poor Governance of Mining and the Violation of Environmental Rights* 66.
[436] CER *Poor Governance of Mining and the Violation of Environmental Rights* 76.
[437] SAHRC *Challenges of Mining-affected Communities in South Africa* 72.
[438] AGSA Parliamentary Monitoring Group Report of the Portfolio Committee on Mineral Resources on its oversight visit Northwest and Gauteng para 5.5.
[439] AGSA Report of the Auditor-General to Parliament on a performance audit of the rehabilitation of abandoned mines at the Department of Minerals and Energy (2021) 45 2.
[440] CER *Poor Governance of Mining and the Violation of Environmental Rights* 73.

According to Alence and Matte,[441] public reporting of compliance enforcement results is one of the indicators of good mineral governance mining.[442] According to their analysis, the accessibility of compliance reports amounts to state accountability, enabling the public to hold the state accountable for compliance in the mining sector.[443] The reason is that the public disclosure of the compliance reports by mines offers credible evidence of enforcement by the state and indicates transparency.[444] It also limits the selective enforcement of obligations by the state on mining companies.[445]

5 Conclusion

This chapter discussed EIA's effectiveness within the South African mining sector. The chapter concludes that some mining companies are not sufficiently complying with their EIA requirements.[446] Factors indicative of the level of non-compliance reflect for example, through the increasing number of unrehabilitated abandoned mines in spite of NEMA and the MPRDA provisions.[447] The other indication is derived from reports of active mines that are causing ongoing environmental degradation such as water pollution and air pollution.[448] Even though the DMRE is mandated to enforce compliance on mines that violate their EIA conditions, this chapter finds that the DMRE's measures to enforce compliance are insufficient.[449] Factors considered to substantiate this conclusion involve the lack of public compliance reporting by the DMRE to verify compliance enforcement by mines, fragmented compliance enforcement mechanisms and unpredictable and insufficient ways of impose sanctions.[450] The deficiency of legislative provisions outlining compliance enforcement procedures and enforcement outcomes also contribute to the ineffectiveness of EIA.[451] As a result, there is a need for law reform to enable the effective implementation of EIA. The next chapter deals with recommendations on how the implementation of EIA can be improved.

---

441 Alence and Mattes *Mineral Governance Barometer: Southern Africa* 2.
442 Alence and Mattes *Mineral Governance Barometer* 2.
443 Alence and Mattes *Mineral Governance Barometer* 2; CER *Poor Governance of Mining and the Violation of Environmental Rights (2016)* 53-55.
444 Alence and Mattes *Mineral Governance Barometer* 12.
445 Alence and Mattes *Mineral Governance Barometer* 12; *CER Poor Governance of Mining and the Violation of Environmental Rights* (2016) 58.
446 Section 2.1, 2.3 and 2.3 of this chapter.
447 Section 1 of this chapter.
448 Section 2.1, 2.2 and 2.3 of this chapter.
449 Section 3 of this chapter.
450 Section 3 of this chapter.
451 Sections 4.2.1 and 4.2.2 of this chapter.

CHAPTER 5: Conclusions and Recommendations

1 Introduction

This dissertation sought to examine the implementation of the Environmental Impact Assessment (EIA) within the South Africa's mining sector. The aim was to analyse how effective is the use of EIA during the operational stages of the mines to protect the environment against the adverse effects of mining.[452] The dissertation addressed the following questions to achieve the aim; whether the regulatory framework for EIA effectively establishes procedures to prevent adverse environmental impacts of mining and whether the existing measures established by EIA regulatory provisions are successfully implemented during mining operational stages.[453]

To answer these questions, the theory and process of EIA were discussed.[454] The aim of that discussion was to understand how EIA is formulated and how its implementation within the mining sector can help prevent and eliminate adverse environmental damage from mining activities.[455] The principles of effectiveness were also discussed to highlight how EIA's effectiveness is assessed.[456] Chapter three discussed legislative provisions regulating the implementation of EIA in South Africa, which dealt with pre-commencement authorisation and post-authorisation procedure, during the operational stages of the mines. Based on legislative provisions discussed in chapter three, chapter four analysed whether EIA is effectively implemented during the active stages of the mines in South Africa. Practical case studies, analysis reports and governmental reports concerning the implementation of EIA were used to determine the level effectiveness through which EIA is implemented by the mines during the operational stages of mines in South Africa.[457]

2 Key Findings

Based on the discussions of this dissertation, the following key findings are highlighted below.

2.1 Legislative framework for the Environmental Impact Assessment for mining

The dissertation concludes in chapter three that the legislative framework emanating from the National Environmental Management Act (NEMA) expressly provides for using EIA within the mining sector.[458] The dissertation further concludes that the EIA legislative provisions for the mining sector align with the theoretical and procedural underpinnings of EIA as provided in chapter two.[459] Based on the theoretical and procedural underpinnings, chapter three highlighted that EIA

[452] See sections 2.2 of Chapter One.
[453] See Section 3 of Chapter One.
[454] See Chapter Two.
[455] Section 1 of Chapter Two.
[456] Section 4, Chapter Two.
[457] Chapter Two and Four.
[458] See section 2.2 Chapter Three.
[459] See section 1 of Chapter Three.

process is carried out in two stages; before commencement of the mining activities for eventual authorisation by the Department of Mineral Resources and Energy (DMRE) and[460] during operational stages of the mines, to protect the environment against the adverse effects emanating from mining activities.[461]

2.2 Implementation of Environmental Impact Assessment conditions for mining by the Department of Mineral Resources and Energy

The dissertation concludes that the implementation of EIA's regulatory provisions for the mining sector by the Minister of Mineral Resources and Energy is potentially conflicted.[462] This is because in terms of the Mineral and Petroleum Resources Development Act (MPRDA), the main objective of the Minister of Mineral Resources and Energy is to promote mining and not to administer environmental matters.[463] Therefore, the dissertation highlights that even though the adverse environmental effects discussed in this research emanate solely from mining companies by failing to comply with their Environmental Management Programmes (EMPs), the ineffectiveness of EIA is exacerbated by inadequate enforcement measures by the DMRE.[464]

2.3 Monitoring of compliance over mines by the Department of Mineral Resources and Energy

Finally, the research concludes that the legislative shortcomings of the provisions regulating EIA during the mines' operational stages also contribute to EIA's ineffectiveness.[465] Drawbacks include the limited outline of specific targets by NEMA regarding EIA inspections and the absence of provisions mandating mining companies and the DMRE to make compliance and enforcement reports publicly available.[466]

3 Recommendations

The above conclusions of this study highlight that EIA's implementation during the operational stages of mines in South Africa is ineffective due to violations of EMP conditions by mining companies. Moreover, the DMRE's inadequacies in enforcing compliance on mines and legislative shortcomings also contribute to the ineffectiveness of EIA's implementation. Thus, recommendations regarding how EIA can be implemented successfully to attain environmental protection during

[460] See section 3 of Chapter Three.
[461] See section 4 of Chapter Three.
[462] See section 2.2 of Chapter three.
[463] See section 2.3 of Chapter three.
[464] Section 3 of Chapter three.
[465] Section 4.2 of Chapter Four.
[466] Section 4.2.3 of Chapter Four.

the operational stages of the mines and how EIA's regulatory framework can be improved to implement EIA effectively are discussed hereunder.

3.1 Improving legislative implementation: Removing the Department of Mineral Resources and Energy from enforcement of Environmental Impact Assessment

This study has argued in chapter four that the implementation of EIA is ineffective because of its implementation by the DMRE, in that the mandate of the DMRE conflicts with the environmental management principles governing EIA.[467] To avoid this conflict of interest, it is recommended that the legislative provisions establishing environmental management structures for mining must be allocated to the Minister of Forestry, Fisheries and the Environment instead of the Minister of Mineral Resources and Energy.[468] This position is supported by many authors, including government agencies, who believe that the Department of Forestry, Fisheries and the Environment (DFFE), which implements NEMA, must implement environmental management of mines because the DFFE mandate will not conflict with the promotion of the mining sector.[469]

3.2 Improving Compliance responsibilities by mines

As discussed in chapter one, mining is, by nature, harmful to the environment and leads to detrimental results.[470] Although mining companies venture into mining projects knowing that mining will create adverse environmental effects, the main focus for such mining companies is to attain profits.[471] Consequently, contractual agreements with the government, requiring mining rights holders to monitor their environmental damages do not attain the mining rights holders' objectives of focusing on profits.[472] As seen from examples made in chapter four,[473] South Africa's battle with acid mine drainage, pollution and land degradation is generally due to minimal environmental management of mining activities left in the hands of mining companies to the detriment of South Africa's environmental safety.[474]

To change this behavior, the EIA provisions must designate the responsibility of compliance enforcement, regarding monitoring and mitigating and remediating of mining effects to both the mining companies and the enforcing organ.[475] For instance, it is recommended that an Environmental Assessment Practitioner (EAP), whom the mining rights holder

---

[467] Section 2.3 of Chapter Three; sections 3 and 4 of Chapter Four.
[468] SAHRC *Challenges of Mining-affected Communities in South Africa 5.*
[469] SAHRC *Challenges of Mining-affected Communities in South Africa* (2016) 5; Humby (2015) *JENRL 128-129.*
[470] Field *State Governance of Mining* 1.
[471] Field *State Governance of Mining* 7.
[472] Field *State Governance of Mining* 7.
[473] Section 2 of Chapter Four.
[474] OECD *OECD Environmental Reviews: South Africa* 2013 13; Mujuru and Mutanga *Management and Mitigation of Acid Mine Drainage* 124.
[475] B Kengni *Strengthening decision-making processes to promote water sustainability* 231.

independently appoints to monitor compliance, must be contracted jointly by the government and the mining company.[476] This approach is practiced in Tanzania, whereby the government implements joint monitoring, evaluation, and storage of raw minerals from mining by government officials and mining rights holders.[477] The same approach could be applied in South Africa for EIA monitoring and mitigation in mining. The shared responsibility will enhance compliance and accountability by the mining companies.[478] It will also be an enabler for the state to strengthen enforcement capacity, which currently needs to be improved by the enforcement authority because it is the critical ingredient for the effective management of the mining sector.[479]

3.3 Providing measurable monitoring and mitigation of mining impacts

As chapter three and four of this study discusses,[480] monitoring and mitigating effects are crucial to protecting the environment against the negative impacts of mining.[481] However, impact prediction and mitigation processes in South Africa often do not compel verifiable results.[482] It is recommended that the law should provide specific verifiable monitoring and mitigating requirements, which should be assessed jointly by government authorities and mining rights holders progressively through the mining operational stages.[483]

The DMRE must also ensure that the EIA compliance with compliance audit reports outlined in the EMP are available to the public via the DMRE and the DFFEs websites.[484] The publication of EIA reports will provide tangible evidence that the DMRE is enforcing compliance and that mining companies are complying with the established EIA conditions.[485]

3.4 Enforcement of Environmental Impact Assessment by the Department of Mineral Resources and Energy

The One Environmental System (OES) discussed in chapter three was meant to address the dual and conflicting regulation of environmental matters for mining. However, the OES's current outcome primarily entails streamlining environmental authorisations before the commencement of mining operational stages.[486] In other words, the OES mostly tackles EIA substantive effectiveness pre-decision-making, not post-decision-making, during the operational stages of the mines. This

---

[476] Kengni *Strengthening decision-making processes to promote water sustainability in the South African mining* 231; Section 1 NEMA; Regulation 13 NEMA.
[477] Section 100A and 100B of the Mining Act Revised Edition 2019 Chap 123 Tanzania.
[478] Kengni *Strengthening decision-making processes to promote water sustainability in the South African mining* 231.
[479] SAHRC *Challenges of Mining-affected Communities in South Africa 76; R* Allence and R *Mattes Mineral Governance Barometer* 4.
[480] See section 4.2 of Chapter Three and section 2 of Chapter Four.
[481] Tinker et al. (2005) *IAPA* 265.
[482] See section 4.2.1 of Chapter Four; Tinker et al. (2005) *IAPA* 265
[483] Section 2.2 of this chapter.
[484] Regulation 34 (1)(a) and (b) of the EIA Regulations, Appendix 4 (l) and 7(2) (a EIA Regulations.
[485] Allence and *Mattes Mineral Governance Barometer* 3.
[486] Humby (2015) *JENRL* 112.

is notwithstanding that the OES led to the establishment of the mining inspectorate to oversee EIA enforcement post-decision-making.[487]

Suppose the DMRE remains the enforcement authority for environmental authorisation in the mining sector. A recommendation is made that the Minister for environmental matters and Minister for Mineral Resources and Energy should amend conditions to the OES concerning specific enforcement of EIA compliance during mining operational stages. The amended OES, for example, must specify responsibilities, procedure and timelines for coordinating functional duties for inspectors from the DMRE and the DFFE. An elaborate procedure entailing specific timelines and boundaries will effectively address conflict concerning inspection from both departments.[488] The effect of this consideration may lead to the review of EIA substantive effectiveness; which is not the focus of this dissertation, but which according to the effectiveness principles discussed in chapter two,[489] may help to assess whether the EIA policy or legislative framework achieves its intended objectives.

4 Final Word

This chapter has highlighted the key findings made throughout the dissertation regarding the effectiveness of the implementation of EIA for mines in South Africa. The chapter has concluded that implementing EIA during the operational stages of the mines is ineffective due to legislative shortcomings and institutional inadequacies. Because of these shortcomings and inadequacies, the regulatory provisions and institutional positioning for the implementation of EIA requires change. Unless these changes are made, South Africa may battle the adverse environmental consequences of non-compliance by mines for a long time, despite EIA legislative provisions and other environmental management tools prescribed under NEMA,[490] such as the strategic environmental assessments, risk assessments and spatial development tools to mention a few. Nonetheless, suppose the government still retains the DMRE as the implementing organ for mining environmental matters, then government must ensure that the DMRE's implementation results are measurable, verifiable and made available to the public to ensure accountability of both the mining companies and the state.

---

[487] Section 4.2.1 of Chapter Four; *CER Poor Governance of Mining and the Violation of Environmental Rights* viii.
[488] See sections 4.2.1 and 4.2.2. For instance, in the case of *Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal* and Others (18701/16) [2017], ZAWCHC inspectors between the DMRE and DEFF were involved in a tug-of-war about environmental violations for Mineral Sands Resources mining.
[489] Section 5, Chapter Two.
[490] Section 24 (4A) (bA) of NEMA.

Bibliography

Secondary Sources

Books

Attwell, L Bank, P Naidoo, P Bond, I Buccus, J Daniel, D Fig, J Hamill and J Hicks *New South African Review 2: New paths, old compromises?* (2018): *Cambridge University Press.*

Beanlands, G, "Scoping methods and baseline studies" in P Warthen (ed) in *Environmental Impact Assessment Theory and Practice* (1990) Routledge.

Clarke, C & Hemphill, J *The Santa Barbara Oil Spill: A Retrospective* (2002) 64 Yearbook of the Association of Pacific Coast Geographers.

Field, T-L *State Governance of Mining, Development and Sustainability* (2019) Cheltenham: Edward Elgar Publishing.

Fuggle, RF and Rabie MA Environmental *Management in South Africa* (1999) Juta & Co, Ltd.

Fuggle, RF and Rabie MA Environmental *Management in South Africa* (2000 Lexis Nexis.

Glasson, J, R Therivel & A Chadwick *Introduction to Environmental Impact Assessment* (2013) London: Taylor & Francis.

Glazewski, J *Environmental Law in South Africa* (2000) Butterworths.

Glazewski, J *Environmental Law in South Africa* (2005) LexisNexis.

Kengni, B "Intergovernmental Relations: One Environmental System" in L Van Schalkwyk *Coordinating Governance for Mining: Streamlining Systems for Improved Intergovernmental Relations* (2019) Cape Town: Juta.

Kidd, M Environmental Law (2008) Cape Town: Juta.

Kidd, M *Environmental Law, A South African Guide* (1997) Kenwyn: Juta & Co.

Kotzé, LJ "Environmental Governance" in AR Paterson and LJ Kotzé *Environmental Compliance and Enforcement in South Africa: Legal Perspectives* (2009) Cape Town: Juta.

Kotzé, LJ, *Global Environmental Constitutionalism in the Anthropocene* (2016) Portland, Oregon: Hart Publishing.

Makuch KE, & Pereira, R *Environmental and Energy Law* (2012).

Maughan J *Environmental Impact Analysis Process and Methods* (2013).

Mujuru, MMS, SS Mutanga and Z Dyosi "The Formation of Acid Mine Drainage" in M Mujuru and SS Mutanga *Management and Mitigation of Acid Mine Drainage in South Africa: Input for Mineral Beneficiation in Africa* (2016) 27-40, Pretoria: Africa Institute of South Africa.

Paterson, AR Kotzé, L *Environmental Compliance and Enforcement in South Africa*: Legal Perspectives" (2009) 129-151, Cape Town: Juta.

Thomson, H, *Water Law: a practical approach to resource management and the provision of services* (2006) Cape Town: Juta.

Wathern, P *Environmental impact assessment: theory and practice* (2015) London: Routledge

Wegerich, K and Warner, J *The Politics of Water: A survey* (2010).

Wood, C *Environmental impact assessment A comparative review* (2003) 2ed.

Zaelke D, Kaniaru D & Kruzìková E *Making Law Work: Environmental Compliance & Sustainable Development* (2005)

Journal Articles

Allence, R and R Mattes "Mineral Governance Barometer: Southern Africa" (2016) Johannesburg: Open Society Initiative for Southern Africa.

Caldwell, L "Environmental Impact Analysis (EIA): Origins, Evolution, and Future Directions" (2012) *Journal of Impact Assessment* 75-83.

Cashmore M, "The role of science in environmental impact assessment: process and procedure versus purpose in the development of the theory*" (2004) Environmental Impact Assessment Review* 403-426.

Cashmore, M, Gwilliam, R, Morgan R, Cobb D & Bond, A "The interminable issue of effectiveness: substantive purposes, outcomes and research challenges in the advancement of environmental impact assessment theory" *Impact Assessment and Project Appraisal*" (2004) 295-310.

Cashmore, M Richardson, T, Hilding-Ryedvik, T & Emmerlin, L, "Evaluating the effectiveness of impact assessment instruments: Theorising the nature and implications of their political constitution" (2010) 30 *Environmental Impact Assessment Review* 371-379.

Castilla-Gomez, G & Herrera-Herbert, J "Environmental analysis of mining operations: Dynamic tools for impact assessment" (2014) *Minerals Engineering Journal.*

Chanchitpricha, C and Bond, A "Conceptualising the Effectiveness of impact assessment processes" (2013) *Environmental Impact Assessment Review* Elsevier.

Centre for Environmental Rights "Full Disclosure: The Truth about corporate environmental compliance in South Africa" (2015).

Du Plessis, A "Public Participation, Good environmental Governance and Fulfilment of Environmental Rights" (2008) 11 *Potchefstroom Electronic Law Journal* 170-201.

Du Plessis, A "Public Participation, Good Environmental Governance and Fulfilment of Environmental Rights" (2008) 11 *Potchefstroom Electronic Law Journal* 1-34.

Du Plessis, W and Nel, J "Driving Compliance to and Enforcement of South African Legislation by means of a Hybrid of "New" Environmental Governance Instruments" in Paddock, L, Qun, LQ, Kotzé LJ, Markell, DL, Markowitz KJ, & Zaelke D (eds) *Compliance and Enforcement in Environmental Law*: *toward more effective implementation* (2011) 260.

Du Plessis, W "Environmental Compliance and Enforcement in South Africa; Legal Perspectives" in AR Paterson & LJ Kotzé Castilla-Gomez, G & Herrera-Herbert, J "Environmental analysis of mining operations: Dynamic tools for impact assessment" (2014) *Minerals Engineering Journal Environmental Compliance and Enforcement in South Africa: Legal Perspectives*.

Durand JF "The Impact of gold mining in the Witwatersrand on the rivers of karst system of Gauteng and Northwest Province South Africa" (2012) *Journal of Earth Sciences* 24-43.

Farjana, SH, Huda, N, Mahmud MAP & Saidur, R "A review on the impact of mining and mineral processing industries through life cycle assessment" (2019) *Journal of Cleaner Production* 1200-1217.

Feris, L & LJ Kotzé "The Regulation of Acid Mine Drainage in South Africa: Law and Governance Perspectives" (2014) 17 *Potchefstroom Electronic Law Journal*.

Gumbley, W "Has environmental impact assessment (EIA) lost its credibility? Recent concerns from Australian and Canada" in P Martin & A Kennedy (eds) *Implementing Environmental Law* (2015) 91-117.

Feris, L & LJ Kotzé "The Regulation of Acid Mine Drainage in South Africa: Law and Governance Perspectives" (2014) 17 *Potchefstroom Electronic Law Journal*.

Harvard Law School International Human Rights Law Clinic "The *Cost of Gold: Environmental, Health and Human Rights Consequences of Gold Mines in South Africa's West and Central Rand"* (2016).

Glazewski, J, "Environmental Provisions in a New South African Bill of Rights" (1993) *Journal of African Law* 177-174.

Glazewski, J, "Improving Unsustainable Environmental Governance in South Africa: The Case for Holistic Governance" (2006) 9 *Potchefstroom Electronic Law Journal* 1-44.

Humby, T-L "'One Environmental System': Aligning the Laws on the Environmental Management of Mining in South Africa" (2015) 33 *Journal of Energy and Natural Resources Law* 110-130.

Jay, S, Jones, C, Slinn, P & Wood, C "Environmental impact assessment: Retrospect and prospect" (2006) (27) Environmental *Impact Assessment Review* 287-300.

Kotzé, LJ, "Improving unsustainable environmental governance in South Africa: the case for holistic governance" (2006) 9(1) *Potchefstroom Electronic Law Journal*.

Kotzé, LJ "The conceptual contours of environmental constitutionalism" 21:181 *Widener Law Review* (2015) 190-191.

Lawrence, D "The need for EIA Theory-Building" (2000) 17 *Environmental Impact Assessment Review* 97-107.

Lawrence, DP "Planning theories and environmental impact assessment" *(2000) Environmental Impact Assessment Review* 607-625.

Leknes, E "The roles of EIA in the decision-making process (2001) *Environmental Impact Assessment Review* 21 (4) in R Morgan "Environmental impact assessment: the state of the art" (2012) 7 *Environmental Impact Assessment Review.*

Loomis, J and Dziedzic *"Evaluating EIA systems' effectiveness: A state of the art" (2017) 68 Environmental Impact Assessment Review 29-37.*

Marais, M FP Retief, LA Sandham, and DP Cilliers "Environmental Management Frameworks: Results and Inferences of Report Quality Performance in South Africa" (2015) 97 *South Africa Geographic Journal* 83-99.

Morgan, RK "Environmental impact Assessment: the State of the art" (2012) 5 *Impact Assessment and Project Appraisal.*

Odeku, K "Effective Implementation of Environmental Management Plan for sustainable mining" (2017) *Environmental Economics* (08)1 26-35.

OECD "OECD Environmental Performance Reviews: South Africa 2013" (2013) South Africa: OECD Publishing.

Pashke, R and Glazewski Ex Post Facto Authorisation in South African Environmental Assessment Legislation: A critical Review (2006) 9 *Potchefstroom Electronic Law Journal* 1-32.

Ridl, J and Couzens, E, "Misplacing NEMA? A Consideration of Some Problematic Aspects of South Africa's New EIA Regulations (2010) (13) *Potchefstroom Electronic Law Journal* 80-119.

Sadler, B "International Study of the Effectiveness of Impact Assessment (1996*) 13 International Association for Impact Assessment (IAIA*) 13.

Tinker, L, Cobb, D, Bond, A & Cashmore, M "Impact mitigation in environmental impact assessment: paper promises or the basis of consent conditions?" *Impact Assessment and Project Appraisal* (2005) (23;4) 265-280.

UNEP *Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach* UNEP (2004).

Weston, J "EIA Theories- All Chinese Whispers and No Critical Theory" (2010) *Journal of Environmental Assessment Policy and Management* 357-374.

Thesis

Kengni, B *Strengthening Decision-Making Processes to Promote Water Sustainability in the South African Mining-Context: the Role of Good Environmental Governance and the Law* DPhil thesis University of Cape Town (2018).

Sibanda, L *Re-purposing of Mine Waste: An Alternative Management Approach to Gold Tailings in South Africa* MPhil Dissertation University of Cape Town (2019).

Internet Sources

Centre for Environmental Rights "Zero Hour: Poor Governance of Mining and the Violation of Environmental Rights in Mpumalanga" (2016) < Zero-Hour-May-2016.pdf (cer.org.za).

Department of Mineral Resources *Government on the rollout of One Environmental System* <http://www.gov.za/government%E2%80%99s-one-environmental-system-ready-commence-8th-december-2014 (accessed 28-12-2022)>.

Munnik, V The Social and Environmental Consequences of Coal Mining in South Africa: A Case Study" (2010) 11 Environmental Monitoring Group <The Social and Environmental Consequences of Coal Mining in South Africa A CASE STUDY | Lilita Mtirara - Academia.edu>.

Pan African Resources "Integrated Annual Report for the year ended 30 June 2021) (2021) Pan-African-integrated-annual-report-2021.pdf (panafricanresources.com).

Pan African Resources "Integrated Annual Report for the year ended 30 June 2022" (2022) 37 <Integrated-annual-report-2022.pdf (panafricanresources.com).

Primary Sources

Legislation

Constitution of the Republic of South Africa, 1996.

Environmental Impact Assessment Regulations, GN R. 982 in GG 38282 of 4-12-2014.

Minerals Act 50 of 1991.

Mineral and Petroleum Resources Development Act 28 of 2002.

Minerals and Petroleum Resources Development Amendment Act 49 of 2008.

National Environment Management Act 107 of 1998.

National Water Act 36 of 1998.

United States of America Environmental Policy Act of 1969

Cases

Director: Mineral Development, Gauteng Region and Another v Save the Vaal Environment and Others (133/98) [1999] ZASCA 9.

Fuel Retailers Association of Southern Africa v Director-General: Environmental Management Department of Agriculture, Conservation and Environment Mpumalanga Province, and Others [2000] SA 4 (CC).

Groundwork Trust and Another v Minister of Environmental Affairs and Others (39724 of 2019) ZAGPPHC.

Harmony Gold Mining Co Ltd v Regional Director and Others (2014) (3) SA 149 (SCA).

Maccsand v (Pty) Ltd v the City of Cape Town and Other CCT (103/11) (2012) ZACC.

Mineral Sands Resources (Pty) Ltd v Magistrate for the District of Vredendal, Kroutz NO and Others (18701/16) [2017] ZAWCHC 25; [2017] 2 All SA 599 (WCC).

Minister of Water Affairs and Forestry v Stilfontein Gold Mining Company Limited and Others (7655/05) [2006] ZAGPHC 47.

Government Notices and Regulations

Environmental Impact Assessment Regulations, GN R. 982 in GG 38282 of 4-12-2014.

4. Government Documents, Policies and Reports

AGSA *Report of the Auditor-General to Parliament on a Performance Audit of the Rehabilitation of Abandoned Mines at the Department of Minerals and Energy* (2021).

AGSA *Report of the PMG Report of the Portfolio Committee on Mineral Resources on Its Activities Undertaken During the 5th Parliament (May 2014-March 2019)* (2019).

Department of Water and Sanitation Gauteng Region: *Upper Vaal Water Management Area Compliance Inspection for Mintail Mining SA (Pty) Ltd Mogale* (2013/2014).

Parliamentary Monitoring Group ATC181107: *Report of the Portfolio Committee on Mineral Resources on its oversight visit to Northwest and Gauteng on the 13-14 September 2018* (2018).

South African Human Rights Commission *National Hearing on the Underlying Socio-Economic Challenges of Mining-Affected Communities in South Africa* (2016).

5. International Instruments

Rio Declaration on Environment and Development of 1992.

The United Nations Economic and Social Council Report of 1997 E/CN.17/1997/8.

United Nations Educational, Scientific and Cultural Organization (UNESCO).

United Nations Report of the World Summit on Sustainable Development (2002) AA/CONF.199/20.

United Nations Convention on the Environmental Impact Assessment in a Transboundary Context (1991).