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**AN ANALYSIS OF THE APPROPRIATENESS OF STATUTORY FINANCIAL SECURITY MECHANISMS
FOR MINE CLOSURE AND REHABILITATION IN SOUTH AFRICA**

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ABSTRACT

A lot of mine were left abandoned, unrehabilitated or unclosed prior to the introduction *National Environmental management Act 107 of 1998* and most did not have plans for rehabilitation or mine closure. The law requires that no exploration or production operations may commence unless financial provision has been made that is guaranteeing the availability of sufficient fund. planning is a prerequisite in the early development planning phase and must continue throughout the mine life cycle and closure phase. The financial provisions must be maintained for the duration of the life of the mine until closure when the closure certificate is issued. The financial provision is critical in ensuring that environmental liabilities for rehabilitation and closure are addressed. The purpose thereof is to mitigate the negative impacts of mining operations on the environment. This paper will investigate financial provisions system which is currently in use in South Africa from the financial security methods employed, the setting up, determination, quantification as well as general rules applicable thereto. The surveys undertaken in this regard and records held by the DMR will be relied on. When mine operations stop, a closure certificate must be issued to serve as proof that the plans relating to reclamation and closure have been complied with. The effect of a closure certificate exonerates the holder of such right from any residual or latent environmental liabilities. The paper will further look into the reasons and barriers to proper mine closure. The overall SA legislative framework for environmental liability relating to closure and rehabilitation generally conforms with international expectations. This paper examines the principal legislation and in particular the 2015 proposed regulations for securing financial provision for environmental liabilities. The main objectives of the research were to evaluate whether the current financial provision systems are appropriate in guaranteeing mine rehabilitation and closure. Moreover, whether they can realistically alter the legacy inherited from past abandoned or unclosed mines. Lastly, examination of the correlation between closure certificate and financial provision in relation to mine closure. Findings indicate that money set aside as financial provision for environmental liabilities is not being spent by the state. The law is clear which steps mine companies must take for rehabilitation and closure of new and old mine sites including legacy abandoned sites. The law is only as good as its implementation and enforcement. The Success of any financial surety instrument depends on the care, effort put into setting it up, managing it and meticulous calculation. Most will work if they are done properly.

LIST OF ACRONYMS

ASM	Artisanal and Small-Scale Mining
DMR	Department of Mineral Resources
EMP	Environmental Management Programme
MP	Mining Permit
MPRDA	Mineral Petroleum Resources and development Act
MR	Mineral Rights
NEMA	National Environmental management Act
NWA	National Water Act
PAIA	Promotion of Access to Information Act
PR	Prospecting Right
UNCED	United Nations Conference on Environment and Development
FES	Federation for Environmental Sustainability

LIST OF TABLES

TABLE 1: FINANCIAL PROVISIONS AND THE ESTIMATION OF RECOVERY ASSETS IN THE ORGANIZATIONS' 2016/17 YEARLY REPORTS. ADAPTED FROM: INTELIDEX REPORT COMMISSIONED BY CER "FINANCIAL PROVISIONING FOR REHABILITATION AND MINE CLOSURE" MAY 2018.24.

TABLE 2: ENVIRONMENTAL LIABILITY AND .FINANCIAL PROVISION (UNAVAILABILITY OF FINANCIAL PROVISION). ADAPTED FROM POTRFOLIO COMMITTEE REPORT 174/2018 ON OVERSIGHT ON MINTAILS AND SHIVA.

LIST OF FIGURES

FIGURE 1.: TABLE ILLUSTRATING CLOSURE CERTIFICATES ISSUED BY DMR 2011-2016. 30

*FIGURE 2.: TABLE ILLUSTRATING CLOSURE CERTIFICATES ISSUED BY DMR 2011-2016.**ERROR! BOOKMARK NOT DEFINED.**32*

FIGURE 1: MINING IN SOUTH AFRICA PER PROVINCE SOURCE: MINERAL COUNCIL OF SA 2018 DMR D1 2016 DATABSE. 303

KEYWORDS

Financial provisions, environmental liability, Mine Closure, Rehabilitation, Closure certificate,

TABLE OF CONTENTS

ABSTRACT	II
LIST OF ACRONYMS	III
LIST OF TABLES	III
LIST OF FIGURES.....	III
KEYWORDS	IV
CHAPTER 1 – INTRODUCTION	1
1.1. BACKGROUND TO THE RESEARCH	1
1.2. AIMS AND OBJECTIVES	2
1.3. RESEARCH QUESTIONS	3
1.3.1. Hypothesis	3
1.3.2. Primary question	3
1.3.3. Secondary questions.....	3
1.4. METHODOLOGY	3
1.4.1. Research methodology.....	3
1.4.2. Research parameters.....	4
1.5. CHAPTER OVERVIEW.....	4
CHAPTER 2 - MINE CLOSURE	6
2.1. INTRODUCTION	6
2.2. REHABILITATION AND CLOSURE PLANS	8
2.3. MINE CLOSURE – GENERAL	8
2.4. CONCLUSION	11
3.1. INTRODUCTION	12
3.2. FINANCIAL INSTRUMENTS WITH ASSOCIATED RISK AND BENEFITS	13
3.3. CONCLUSION	15
CHAPTER 4 - SA LEGAL FRAMEWORK	17
4.1. INTRODUCTION	17
4.2. LEGISLATIVE FRAMEWORK	17
4.3. FINANCIAL PROVISIONS AND THE REGULATIONS	20
4.3.1 Financial Provision and Environmental Liability	23
4.4. CONCLUSION	26
CHAPTER 5 - EVALUATION AND ANALYSES	27
5.1. INTRODUCTION	27
5.2. DATA ANALYSIS	29
5.3. CLOSURE CERTIFICATE.....	31
5.4. CONCLUSION	34
CHAPTER 6 - CONCLUSION AND RECOMMENDATIONS	36
6.1. CONCLUSION	36
6.2. RECOMMENDATIONS.....	37
BIBLIOGRAPHY.....	38
<i>Case Law</i>	38
<i>Legislation</i>	38

<i>Policy documents</i>	38
<i>Treaties</i>	38
<i>Book chapters</i>	38
<i>Books</i>	38
<i>Journal articles</i>	39
<i>Online sources</i>	39
<i>Reports</i>	40

CHAPTER 1 – INTRODUCTION

1.1. Background to the research

Mankind has for economic and other reasons, relied on nature for survival. Often this involved interference with the environment. Mining is one method through which social and economic developmental goals of man can be achieved.¹ The extraction of minerals from the ground from which the iron ore is sourced and involves disturbance of the land which is damaging to the environment. The impact thereof has the potential of wiping out the ecosystem, creation mine dumps and displacement of communities.²

Prior to the Minerals Act 50 of 1991,³ mining was done with little or no regard to its effects on the environment.⁴ Following the scientific advancement and growing awareness of the risks posed by mining to the environment, new norms and standards were developed to curb the impacts of the disturbances on the environment. as a result of mining activities.⁵ Such measures involve reconciling the need for economic development with the protection of the environment expressed in the notion of sustainable development. This is embedded in the Mineral Petroleum Resources Development Act.⁶

Global trends suggest a movement towards sustainable development and adoption of practices associated therewith.⁷ There's an obligation, amongst different states where mining operations are carried out, to ensure compliance with the sustainable development practices in order to protect the environment in their respective jurisdictions.⁸

Mining has left the environment in ruin. This can be attributed to a range of reasons like the legacy of inherited abandoned mines from the 1800's, poor environmental laws, effects of depletion of the

¹ White paper "Mapping Mining to the Sustainable Empowered lives. Resilient nations. Development Goals: An Atlas" July 2016, UNDP
https://www.undp.org/content/dam/undp/library/Sustainable%20Development/Extractives/Mapping_Mining_SDGs_An_Atlas_Executive_Summary_FINAL.pdf.

² Guidebook for Evaluating Mining Project EIAs "Overview of Mining and its Impacts"
<https://www.elaw.org/files/mining-eia-guidebook/Chapter1.pdf>, accessed 2019.6.12.

³ Minerals Act 50 of 1991

⁴ Swart E, SA *Legislative frame work for mine closure*, SAIMM, *Volume 103, Issue 8*, Oct 2003, p. 489 – 492, *Journal of the Southern African Institute of Mining and Metallurgy*,
<https://www.saimm.co.za/Conferences/MineClosure/001-Swart.pdf> accessed 2019.11.

⁵ An example of such instrument is the "polluter pays" principle which entails that the person responsible for the contamination of the environment is responsible for the costs of cleaning up same.

⁶ Preamble of MPRDA 28 of 2002.

⁷ DME Strategic framework on Sustainable development-2009.
https://www.gov.za/sites/default/files/gcis_document/201409/sd-strategic-framework-minerals-april-2009.pdf accessed 2019.5.02.

⁸ IFC Guide "Sustainable and responsible mining in Africa:" <https://www.ifc.org/wps/wcm/connect/14d1fb8c-8d63-47c9-acb7-35b20a488ff2/Sustainable+Mining+in+Africa.pdf?MOD=AJPERES&CVID=knWL6Rr> accessed 2019.9.20.

mineral reserves, acid mine drainage and unavailability or underfunding of the costs needed for rehabilitation and mine closure.

There are various instruments aimed at sustainable development. Examples include, the Rio World Summit Report on Sustainable Development,⁹ DMR guideline on principles of sustainable development.¹⁰ The main intention thereof is to promote optimum use of minerals resources in a sustainable manner that will leave a sustainable legacy when mining operations finally cease.¹¹ The *United Nations Conference on Environment and Development* (UNCED) in 1972 first introduced the concept of remedying the impacts that mining company's actions have on the land. As result the "Polluter Pays principle" was born.¹² A further discussion regarding this principle is contained in chapter 3 below.

The law requires that mining companies must prepare a detailed report showing how the damage resulting from the operations of the mine will be fixed, this restoration is called rehabilitation and can be expensive.¹³ Further, once mining operation begins, one can be certain that mine closure will occur and this also requires planning. The period when mines are closing their operations is the stage when many mines make their biggest environmental impact and these impacts can last for decades.¹⁴

Mines must describe how funds will be set aside to prevent the release of toxic contaminants on the environment and ensure that the costs of the full rehabilitation and mine closure are provided for.¹⁵ There is evidence of huge shortfalls or unavailability of provisions required for environment liabilities and closure.¹⁶

1.2. Aims and objectives

The main aim of this research is to investigate whether the South African legislation has put in place appropriate financial security mechanisms for financial provisions to guarantee mine closure and site rehabilitation when mine operations come to an end.

In order to achieve this aim, the research will analyse various objectives. These objectives include:

- to establish the scope of mine closure as well as the financial implications thereof;
- analysis of the current South African legal framework as it relates to the requirements for decommissioning non-operational mine sites and

⁹ United Nations Conference on Environment and Development, Rio Declaration on Environment and Development, UNCED Doc. A/CONF.151/5/Rev. 1, 31 ILM 874 (1992).
http://www.unesco.org/education/pdf/RIO_E.PDF accessed 2019.02.25

¹⁰ DMR guideline on Principles of Sustainable Development "2016/2020 Environment Management Plan"
<https://cer.org.za/wp-content/uploads/1999/01/DMR-EMP.pdf> accessed 2019.6.07. See also section 37 of the MPRDA.

¹¹ Preamble of the MPRDA encourages sustainable mining.

¹² See footnote 9.

¹³ Section 44 of National Environmental management Act 107 of 1998 read with regulation 62 of MPRDA.

¹⁴ Guidebook for Evaluating Mining Project EIAs "Overview of Mining and its Impacts"
<https://www.elaw.org/files/mining-eia-guidebook/Chapter1.pdf>, accessed 2019.6.12.

¹⁵ Environmental Law Alliance Worldwide, 2015 "guidebook for evaluation of mining projects EIS"
<https://www.elaw.org/files/mining-eia-guidebook/Full-Guidebook.pdf>. (accessed 2019-03-01).

¹⁶ Shiva mine where huge shortfall amounting to over R38 million, full discussion in chapter 3.2 below.

- evaluation of how current financial provisions address the insufficient legacy of derelict and abandoned mines.

1.3. Research questions

This research hypothesises that the current legal regime in South Africa is inadequate for the purposes of successfully closing and rehabilitating operational mine sites, particularly with regards to financial provision.

1.3.1. Hypothesis

This research departs from the hypothesis that the current legal regime in South Africa is inadequate for the purposes of successfully closing and rehabilitating operational mine sites, particularly with regards to financial provisions.

1.3.2. Primary question

Whether the current financial provisions and requirements are appropriate and realistic to guarantee mine closure and site rehabilitation in South Africa?

1.3.3. Secondary questions

- Whether current financial security measures realistically alter the legacy left by past abandoned mines?
- Whether there is a correlation between the financial provision and the difficulty to issue mine closure certificates?

1.4. Methodology

1.4.1. Research methodology

A desktop study entailing the identification and analysis of legislation pertaining to financial security mechanisms, particularly, Legislation relating to the environmental impact. The research will employ both the qualitative and quantitative approach.

The primary sources comprise legislation, books and caselaw.

The secondary sources of the research include reference to the literature works from academic writers and handbooks, Journal articles, media reports and parliamentary committee session debates and contributions made by community lobby groups.

The sources contributing towards the quantitative comprise largely of recent surveys found in relation to financial provision regarding environmental liabilities for rehabilitation and closure. The research will focus on critical analysis of the financial provisions put aside by mines operating in South Africa. An examination of both the mines that are still in operation and those that have ceased operations

A quantitative examination of the Data collected from research surveys conducted by interest groups Centre for Environmental Rights and Oxpeckers. Moreover, the parliamentary committee reports used

in support of the surveys will be examined. The study will look at the instruments and the actual financial provision set aside by the mining companies to fund environmental rehabilitation and mine obligations for closure. In this regard, the annual financial information of the mining houses for the past five years and the records kept by the DME are utilised. Information that is reported in foreign currencies is converted into Rands, by multiplying the exchange rate applicable at the financial year end of that company with balance sheet figures.

1.4.2. Research parameters

The research will focus on legal medium to large-scale mining operations that act duly authorised to operate within the ambit of the MPRDA. Artisanal mining is not covered.

In addition, an examination of the ongoing developments within legal framework relating to the financial mechanisms for financial provision for rehabilitation and mine closure. Specifically, the study shall focus on the environmental legislation and the 2015 proposed regulations of NEMA relating to financial provision up and strictly shall not cover any subsequent proposed regulations and transitional arrangements up to the 2019 proposed regulations.

Relevance of the research

This research will contribute to the current discourse regarding the adequacy of financial security provisions and the legislative provisions available to regulate industry regarding same. The aim thereof is to promote discussion and debate on the financial security measures and the implementation thereof.

The impact of extractive industry on the environment and the life of the community living where the mining operations occur are significant, so this research will identify the causes and ways to curb negative impacts. In addition, suggest systems that can be introduced to improve the current position. The relationship that exists between the closure certificates, financial provision and environmental liabilities of the mine's life is explored. The research seeks to improve the understanding of the causes of the struggles relating to obtaining of mine closure certificates and the financial aspects related to estimation of closure costs.

The effect of mining on the ecosystem and the affected community are huge, so this examination will attempt to identify the causes and ways to improve the present position.

1.5. Chapter overview

Chapter one provides an introduction, background and aims and objectives for the study, this is followed by research questions, methodology and the significance of the study and chapter overview. The general aspects relating to the impacts of mining on the environment and how such impacts are addressed are set out in this chapter. Mining operations, upon termination and if mined are is not rehabilitated or closed properly, leave behind a ruined environment. The chapter discusses the need for proper closure and rehabilitation as well the dangers arising from failure to guard against negative impacts left by mining. The origins of abandoned and derelict mines and the impact thereof.

The law requires rehabilitation and mine closure plans before a mine can be closed. This chapter explores why it is necessary to make money provision for the environmental liabilities resulting from the mining operations.

Furthermore, in Chapter 3 the research will deal with the financial implications of mine closure and problems associated with the estimation, adequacy, efficiency and appropriateness of financial provisions regarding the costs and quantum. This chapter also explore the various instruments employed by mining companies to fund their environmental rehabilitation obligations. The benefits and shortcomings of each financial security vehicle for ensuring provisions for rehabilitation and mine closure are discussed. The causes of underestimation and underfunding in the mining sector are covered in this ranging from the items used in calculation and the flaws in the method.

In chapter 4, the South African legislation and regulations pertaining to the financial security provision for rehabilitation and mine closure are examined. Transitional provisions contained in the Government 2015 financial provision regulations. Particular emphasis will be placed on the determination and the scope of the financial provisions, legislation as per the National environmental management Act (NEMA) and Mineral Petroleum Resources and Development Act (MPRDA) and the national Water Act provisions (NWA). This chapter will examine the amounts or provisions by mining companies relative to the volume of mining taking place. Further, the document examines a research conducted on the status of financial provision in relation to environmental obligations.

In chapter 5, an analysis of the surveys conducted in relation to financial provisions and challenges relating to the issuing of the mine closure certificates. This chapter will concentrate on the data collected and attempt to analyse and interpret the findings. The research surveys commissioned by CER and Oxpeckers, a centre for investigative environmental journalism, will be analysed. Focus will be on financial security measures and the related financial provisions for liabilities occasioned with mine rehabilitation and closure.

The process of issuing closure certificates and how same is granted is scrutinised herein. the challenges that make it difficult for the DMR to issue closure certificates are addressed in this chapter.

Conclusion and Recommendations are contained in chapter 6 where the initial research objectives are revisited and the study is evaluated.

CHAPTER 2 - MINE CLOSURE

2.1. Introduction

Mining entails a temporary land use and therefore is not infinite.¹⁷ Mine closure could happen after a short period of time or decades after operations commenced. Mine closure occurs when either of the following happens, the mineral resources from the ground are depleted, the cost of extracting the commodity out of the ground as well as the market prices make it not financially viable to continue with the mining operations.¹⁸ Further, the premature closure could be caused by the insolvency of the mining company.

The negative impacts from mining can be hazardous to environment and the people.¹⁹ This could take a form of physical disturbance of the surface or chemical contamination of the water quality. The worldwide environmental discourse is dominated by the concept of Sustainable Development and this includes environmental assessment of the impacts and redress of same.²⁰ According, to the IFC performance standards, the mining company has an obligation to ensure proper redress to the disturbance following the operations of the mine.²¹ There must be Proper plans for rehabilitation and mine closure and the costs for realising same should be provided for in that plan.

In South Africa, the Mineral and Petroleum Resources Act, section 56 dealing with the principles for mine closure read with section 39 relating to environmental management programme requires that mine closure planning must form part of the application, design and operation life of the mine.²² The holder of the mineral right must make financial provision to guarantee the availability of sufficient funds to undertake rehabilitation and remediation of the adverse environmental Impact of mineral activities.²³ According to the centre for Environmental Rights, this system has failed in South Africa.²⁴

¹⁷ Article "Post mining land use opportunities in developing countries" Limpitlaw D and Briel A ,2014 Limpitlaw, D., & Briel, A. (2014). a review. *Journal of the Southern African Institute of Mining and Metallurgy*, http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S2225-62532014001100007&lng=en&lng=en. Accessed 2018.02.20.

¹⁸ Laurence D "optimisation of mine closure process" *Journal for Cleaner Production*, Volume 14 issues 3-4,2006,P285-298, <https://www.sciencedirect.com/science/article/pii/S0959652605000399?via%3Dihub> accessed 2019.2.21.

¹⁹ Auditor General South Africa, *Report of Auditor General to Parliament on a Performance Audit of Rehabilitation of Abandoned Mines at the Department Of Minerals And Energy* (AGSA, 2009). Available at: https://cer.org.za/wp-content/uploads/2011/10/AG_Report_on_abandoned_mines-Oct-2009.pdf (last accessed 16 October 2018). See also IFC, *Environmental Management Framework Implementation Handbook* (YEAR),<https://www.ifc.org/wps/wcm/connect/22dc7500483774689335f7299ede9589/ESMS+Handbook+General+v2.1.pdf?MOD=AJPERES> (last accessed 16 October 2018).

²⁰ ICMM, 10 principles. <http://www.icmm.com/en-gb/members/member-commitments/icmm-10-principles/icmm-principle-6>

²¹ International Finance Corporation, performance standards number. https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards accessed 2018.2.20.

²² Sec 56 and section 39 of the Mineral and Petroleum Resources Act.

²³ Regulation 4 of the regulation pertaining to the financial Provision for Prospecting, Exploration, Mining or Production Operations, published under Government Notice R1147 in government gazette 39425 of 20 November 2015 (**Financial Provision Regulation**).

²⁴ A report titled "full disclosure - the truth about mine rehabilitation in South Africa" Centre for Environmental Rights" 2018, <https://fulldisclosure.cer.org.za/> accessed 2019.06.5_

Research published in the WWF report show that mining companies are not fulfilling this function adequately.²⁵

Derelict and abandoned mines costs Government millions of Rand's, the amounts which fall outside of the financial capacity of most governments in developing countries.²⁶ These types of mines are often referred to as historical, ownerless or orphaned mines. These are mines where the owner is known but who is unable to carry out the remedial action or proper mine closure and are often left to be a responsibility of the State.

The risks associated with abandoned mines manifest in air pollution by dust or combustion from burning mine workings or dumps as well as water contamination etc. Also, chemical and physical risks e.g. acidity, salts, metals and physical hazards posed by sites with open shafts and unstable slopes.²⁷

Mining is a huge generator of foreign income, with gold accounting for over two thirds of South Africa's exports.²⁸ South Africa also has a number of other mining activities, for example, coal, manganese, chrome, platinum and diamonds.²⁹

When a mine ceases to operate, it is only regarded as being closed once a closure certificate has been issued.³⁰ The right holder or mine owner remains responsible for all liabilities related to that mine until a closure certificate has been issued. The MPRDA further requires that the owner make financial provision for all environmental liabilities related to the mine.³¹

In terms of section 46 of the MPRD Act, if a closure certificate has not been issued and no party can be traced to assume responsibility for the liabilities of an abandoned mine, it may be classified as derelict and ownerless (abandoned) and government may provide funding for its rehabilitation.³²

According to a report by the Council for Geoscience (CGS) to the DME, there were 5 906 officially listed abandoned mines in South Africa at the end of May 2008.³³ The majority of the 5 906 mines closed down prior to 2002 when the MPRD Act came into effect.³⁴ This indicates that abandoned mines pose a huge health risk to a large section of the South African public.³⁵

²⁵ Report by WWF South Africa "Financial Provisions for Rehabilitation and Closure in South African Mining: Discussion Document on Challenges and Recommended Improvements" 2012
http://awsassets.wwf.org.za/downloads/wwf_mining_8_august_low_res.pdf accessed 2018.08.20

²⁶ See footnote 5 above.

²⁷ The Auditor General South Africa, "Report of auditor general to parliament on a performance audit of rehabilitation of abandoned mines at the department of Minerals and Energy", October 2009.
https://cer.org.za/wp-content/uploads/2011/10/AG_Report_on_abandoned_mines-Oct-2009.pdf

²⁸ PWC 'SA mining sees a turnaround in financial performance' 2017.
<https://www.pwc.co.za/en/press-room/sa-mining-industry-sees-a-turnaround-in-financial-performance-.html> accessed 2018.10.12.

²⁹ PWC 'SA Mine Review of trends in the south African mining industry' November 2010.
<https://www.pwc.co.za/en/assets/pdf/pwc-sa-mining-2011.pdf> accessed 2018.10.12.

³⁰ Section 43 of the MPRDA pertaining to the issuing of closure certificates.

³¹ See footnote 15 above.

³² The Mineral and Petroleum Resources Development Act 28 of 2002.

³³ The Annual report of Department of Mineral and Resources for the period of 2011 to 2012.
https://www.gov.za/sites/default/files/gcis_document/201409/departamentofmineralresourcesannualreport20112012.pdf page 158 accessed 2019.8.30.

³⁴ See footnote 17 above.

³⁵ *Ibid.*

2.2. Rehabilitation and Closure Plans

It is essential that rehabilitation and closure are planned during the design and operating stages of a deposit. All attempts at rehabilitation during the life of the deposit must take cognisance of the condition that must be met at closure.

The rehabilitation and proper closure of the affected surface, once mining operation finally cease, is necessary to curb these problems effectively, especially in the long term. Therefore, the applicants must demonstrate the capacity to make necessary provision to address such environmental liabilities.

The plan and rehabilitation programme in respect of the surface of land concerned in any prospecting mining operation or such intended operation must be submitted by the holder of the permit or authorisation concerned to the Regional Director for his approval before any such operations are commenced with.³⁶ Rehabilitation must be carried out according to the rehabilitation programme during prospecting mining operation and can resume simultaneously with such operation.³⁷

The owner of the mine must make a provision for the estimation of costs required to address the rehabilitation of the impacted land area and to determine annually in consultation with The owner of the mine must make a provision for the estimation of costs required to address the rehabilitation of the impacted land area and to determine annually in consultation with the expert(s).³⁸ The minister is empowered to make regulations relating to rehabilitation of disturbed area and impose levies and form accounts for such levies.

The owner of the mine may be required to make deposit equal to the costs of rehabilitation in trust or any other suitable financial security vehicle like insurance or the state operated rehabilitation fund.³⁹

2.3. Mine Closure – General

Closure is a term used to depict various aspects related with the discontinuance of mining operations and closing down of a mine. Mine closure alludes to generally momentary estimates important to close a site satisfactory, including decommissioning and residuals management. South Africa is naturally endowed with large minerals quantities and has a developed mining industry. Both contribute to South Africa's economy and development goals. However, to get to the minerals requires that mining operation to be conducted and this in turn involves the disturbance of the surface the land.

The MPRDA in its preamble places an obligation on the State to protect the environment for the benefit of present and future generations, to ensure ecologically sustainable development of mineral and petroleum resources and to promote economic and social development.⁴⁰

The mitigation of the biophysical impact of mining becomes necessary. The overall goal of managing these impacts should be to design and implement mitigating measures that will minimise the residual

³⁶ Section 44 of NEMA.

³⁷ *Ibid.*

³⁸ Regulation 9 (1) of the NEMA act 107 under Government gazette notice 1147 pertaining to the financial Provision for Prospecting, Exploration, Mining or Production Operations, published 17 May 2019 (**Financial Provision Regulation**).

³⁹ *Ibid* regulation 8 and regulation 6.

⁴⁰ The preamble of the Mineral and Petroleum Resources Development Act 28 of 2002.

impact of mining. Hence, every mine should plan for closure and a walk away solution.⁴¹ The disturbances that the surface of the land where mining operations occur should be kept to a minimum or restored when the mining operation finally cease. The mine closure plan as contained in the environmental impact programme. However, no environmental project has zero environmental impact.

South Africa have experienced about 6000 abandoned mines where proper closure was not carried out by the owners. These mines result from inadequate mine closure plans; incorrect estimation of financial provision and use of inappropriate financial security vehicle leaving behind massive shortfalls. Traditionally, the responsibility to close such mines passed to the state and taxpayer.

According to the Auditor general, the costs to address the legacy of ownerless mines could top R30 billion. Good management requires mine owner to manage project finances to which include the finances to manage the environment.⁴² These falls into -

- a. Project Capital (these provide for pre-mining environmental studies and planning activities involved in compiling environmental management programme);
- b. Working costs (cater for implementation of the environmental management programme); and
- c. Provision for closure (which must be deducted from profit over the productive years of the mine's life. Management usually establishes some kind of Trust fund for this closure provision.⁴³

The objectives of mine closure according to the DMR primarily include the protection of humans and animals against the dangers associated with mining operations; mitigation of the impacts on the environment, restore the impacted land so as to allow re-use of the land; ensuring that there is both chemical stability as well as physical stability of the impacted area. Moreover, the DMR as the organ of the state must ensure optimal utilisation of the resources.⁴⁴

The right to a healthy environment is embedded in our section 24 of our constitution.⁴⁵ Essentially, it provides that everyone is entitled to live in a healthy environment which is free from harm and pollution.

The South African environmental legislation conforms to the international standards and principles including the "polluter must pay" principle.⁴⁶ The principle emphasises the need that the person who is responsible for environmental degradation, pollution or degradation of the ecosystem is liable for cleaning up such disturbance.⁴⁷ Moreover, the principle has evolved to include the notion of perpetual liability *i.e.* the liability of the mining company continues even after the mining activities have ceased.⁴⁸

⁴¹ World Bank, "Guidelines for the implementation of financial surety for mine closure" 2009 http://siteresources.worldbank.org/INTOGMC/Resources/7_eifd_financial_surety.pdf, accessed 2019.02.20.

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ Glazewski J "Environmental Law in South Africa" 2nd edition (2004)

⁴⁵ Section 24 of the Bill of rights, Chapter 2 of The Constitution of south Africa Act 108 of 1996.

⁴⁶ DMR guideline on Principles of Sustainable Development "2016/2020 Environment Management Plan" <https://cer.org.za/wp-content/uploads/1999/01/DMR-EMP.pdf> accessed 2019.6.07.

⁴⁷ Section 28 of NEMA.

⁴⁸ Section 24R of NEMA.

Thus, the mining company will be responsible for latent and residual defects as result of mining operations.⁴⁹The environmental liability endures until the Minister has issued a closure certificate⁵⁰

The Act provides for the transferability of environmental liability and responsibility of the right holder to the person to whom the right is to be transferred and who also is required to make the necessary financial provision for rehabilitation.⁵¹

The circumstances where a holder of a mining right may apply for a closure certificate are set out.⁵² The holder of right or permit including old order right owner or holder relating to a mining operation that has stopped must apply for a closure certificate under the following circumstances -

- a. when the permit or right in question lapses, is abandoned or cancelled;
- b. when the mining operation stop;
- c. when any part of the land to which a right or permit relate is relinquished;
- d. upon fulfilment of prescribed closing plan relating to the rights or permit in question;⁵³

An application for a closure certificate must be made to the Regional Manager in whose region the land in question is situated within 180 days of the occurrence of the foregoing.⁵⁴

The closure requirements for right holders will be determined from the approved environmental management plan and what is required therein. Planning for mine closure is generally accepted as a process that requires engagement with regulators and communities and other interested and affected parties.

Closure activities may involve the decommissioning of facilities that were used whilst the mining was active.

The closure plan contemplated in section 43(3)(d) of the Act, forms part of the environmental management plan.⁵⁵ The plan must disclose in relation to environmental obligations the following –

- a. a summary of the regulatory requirements and conditions for closure negotiated and documented in the environment management programme;
- b. a summary of environmental risk report and details of identified residual and latent impacts.
- c. Description of the methods to decommission each prospecting / mining component and the mitigation or management strategy proposed to avoid, minimise and manage residual or latent impacts;
- d. Details of any long-term management and maintenance expected;
- e. details of a proposed closure cost and financial provision for monitoring, maintenance and post closure management.⁵⁶

⁴⁹ *ibid.*

⁵⁰ Sec 43 (1) of the MPRDA.

⁵¹ *Ibid* 43 (2).

⁵² Oxpeckers Report “*Cleaning up the mess*” Mark Olade, published 17/11/2017, <https://oxpeckers.org/2018/07/cleaning-up-mining/> accessed 2019.2.12.

⁵³ *Ibid.*

⁵⁴ Glawzeski J “environmental law in south Africa” 2nd edition (2004) 475.

⁵⁵ Section 43 (3)(d) of the MPRDA.

⁵⁶ Sec 44 NEMA; See also Wells JD, Van Meurs, LH and Rabbie MA et al “*Terrestrial Minerals*” HA Strydom and ND King(editors), 2009 513- 578.

2.4. Conclusion

The eventual closure of a mining operation is inevitable. Leaving a sustainably rehabilitated landscape and a properly closed mine benefits everyone; the local community, the ecosystem and the reputation of the company. Planning for closure needs to be a collaboration between governments, industry and communities to both understand and address the environmental, social and economic impacts.

Mining operations involve a disturbance of the surface of the environment. This is hazardous to the environment and the people. Mine closure is today a largely regulated affair. The environmental management programme requires that mine closure planning must form part of the application, design and operation life of the mine. When mining operations cease or discontinue, environmental problems associated with mining do not always stop there but frequently continue. The law requires that mining company must make financial provision to fulfil those plans.

From the discussion, it's clear that closure certificate is required to achieve proper mine closure. The effect of granting the closure certificate implies that the mining house is absolved of any further environmental liability and the state must take over the costs of environmental liability.

South Africa has a challenge of abandoned or ownerless mines inherited from past operations where proper mine closure did not take place, leaving behind environmental degradation. Now that the owners are long gone, the polluter pays principle is unlikely to be effective. Today still, some mining companies cease operations without proper mine closure. It's difficult to prioritize which of these sites needs to be attended first.

The costs of rehabilitation and proper closure fall outside the financial capacity of most governments in developing countries. Thus, ongoing improvement of rehabilitation and maintenance process is required.⁵⁷

⁵⁷ Intellidex report, OTambo and S Theobald, "Financial Provisioning for Rehabilitation and Mine Closure" May 2018 <https://fulldisclosure.cer.org.za/2018/wp-content/uploads/2018/06/Intellidex-financial-provisioning-for-rehabilitation-and-closure-in-SA-mining.pdf> accessed 2019.4.12.

CHAPTER 3 - THE FINANCIAL IMPLICATIONS OF CLOSURE

3.1. Introduction

In South Africa the law requires that mining houses must set aside funds towards expenses relating to rehabilitation and closure.⁵⁸ This in turn suggests that the state must discharge its obligation of ensuring that that funds set aside for rehabilitation and closure of mines are spent correctly to realise the said goals. Reluctance or inaction of the authority contributes to the failure of addressing the legacy of abandoned or derelict mines.

An information driven examination by Oxpeckers uncovers that almost R60-billion is being withheld in funds earmarked for rehabilitation and closure of mines in South Africa.⁵⁹ Huge mines are not appropriately closed and the cash can't be touched. Generally, this money must not be utilized for rehabilitation while a mine is still operational. However, the DMR can utilize it if a mine is abandoned.⁶⁰The DMR office is yet to give an occasion where this cash has been utilized.

These funds can only be paid back to the mining company upon the issuing of a closure certificate which endorses the removal of the remaining liability from the company.⁶¹ The information further uncovered a system of a failed mine closure due to little oversight.

large mining houses carry the obligation of making financial provisions which are rarely used. thus, huge mines are rarely properly closed.⁶² In chapter 4, an examination of the different mines and analyses of the figures presented by the investigation will be assessed. Another contributing factor to the problems occasioned with the financial aspects of mine closure lies in the inaccurate calculation of the funds needed to ensure proper rehabilitation and mine closure. The reasons that can be advanced for this, the reliance on the old and outdated guiding document by the DMR for evaluation of the quantum for financial provisions of 2005.⁶³ The underestimation and inflation contribute to the overall shortfall which largely presents itself when the mine stops operation, often too late to do anything about it.

The Rand/dollar exchange rate of 2005 and the rate today is different, thus there is an increase in the dollar value. However, the 2005 guideline document still relies on the 2005 exchange rates and has not been amended since publication.⁶⁴ While the rand to dollar conversion in January 2005 was about R6 to \$1, now R15.33 is equal to \$ 1, indicating wrong estimates could be reached if the method of

⁵⁸ regulation 7 of GN 1147 REGULATIONS PERTAINING TO THE FINANCIAL PROVISION FOR THE REHABILITATION, CLOSURE AND POST CLOSURE OF PROSPECTING, EXPLORATION, MINING OR PRODUCTION OPERATIONS financial provision 2015

⁵⁹ Oxpeckers Report "cleaning up the mess, Mark Olalde, published 17/11/2017.

<https://oxpeckers.org/2018/07/cleaning-up-mining/> accessed 2019.2.12

⁶⁰ section 46 of MPRDA.

⁶¹ Sec 43(6) of the MPRDA pertaining to refund of financial provision or part thereof.

⁶² See footnote 58.

⁶³ Official DMR 2005 guideline for the evaluation of the quantum of the financial provision as contemplated in Regulation 54(1) to the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002 <http://www.aspasa.co.za/PDFs/DMR-guidelines-quantam.pdf> accessed 2019.2.13.

⁶⁴ Oxpeckers Report "Cleaning up the mess" Mark Olade, 17-11- 2017, <https://oxpeckers.org/2018/07/cleaning-up-mining/> accessed 2019.2.12

calculation is flawed.⁶⁵This in turn can result in the inadequacy of the amount set aside for rehabilitation and mine closure. Therefore, cost factors must be adjusted to inflation according to the CPIX.⁶⁶ Calculations by the auditor general show that by using the outdated figures, mines can be underestimating the rehabilitation costs of their operations by 50%.⁶⁷

3.2. Financial Instruments with associated risk and benefits

Providing adequate funds for closure is a vital part of the planning process. Closure cost estimates are used by mining companies to provide funds for closure and also by regulatory agencies to establish financial surety which may be in the form of trust funds, bonds, insurance etc.⁶⁸

The method for calculating closure costs is an important consideration and can have drastic consequences if the total amount is not accurate in that it can impact on whether the anticipated costs of rehabilitation and closure are met.

Similarly, the way that these costs are used in project evaluations and the provisions that mining companies make for providing such funds at the time of closure need to be addressed. The largely supported financial security methods used in the extractive industry are -

Trust fund	a trust fund is a fund set up by a mining company for an amount that is determined to be sufficient to cover specific costs of closure and rehabilitation which are contained in the closure plan. ⁶⁹ A trust Fund is set up independently of other liabilities of the mining company so that debtors do not have a claim against the trust fund in the event of insolvency.
Bank guarantees	this can be defined as an agreement between a banking institution and a mining company whereby the bank will provide funds to a third party (the beneficiary, which in this case would be the government). It functions like a letter of credit. ⁷⁰ The guarantee would then need to be in the name of a non-right or permit holder. This guarantee is unconditional, irrevocable and must be paid on demand. ⁷¹ In terms of the NEMA, a financial guarantee from a South African registered bank or any other bank or financial institution approved by the Director-General, guaranteeing the financial provision relating to

⁶⁵ *Ibid.*

⁶⁶ fin 24.com "In Depth: Cleaning up the mess" <https://www.fin24.com/Companies/Mining/in-depth-cleaning-up-the-mining-mess-20180712> .

⁶⁷ Africa wild website article "the state to foot the bill of abandoned mines" 2012 <https://africawild-forum.com/viewtopic.php?f=334&t=6699&p=316908&hilit=blyvooruitzicht#p316908> accessed (2019.08.27).

⁶⁸International Institute for Environmental Development, MMSD, "Mine Closure Working Paper" issue 34, April 2002. Available at: <https://pubs.iied.org/pdfs/G00884.pdf>, accessed 2019.2.20.

⁶⁹ WWF Report, "Financial provision for rehabilitation and mine closure in South African mines" Van Zyl H 2012, http://awsassets.wwf.org.za/downloads/wwf_mining_8_august_low_res.pdf (accessed 2019-03-15).

⁷⁰ World Bank, "Guidelines for the implementation of financial surety for mine closure" 2009 http://siteresources.worldbank.org/INTOGMC/Resources/7_eifd_financial_surety.pdf, accessed 2019.02.20

⁷¹ *Ibid.*

implement the EMP in the format approved by the Director-General from time to time will be acceptable.⁷²

Cash deposit a deposit can be made for a financial surety as cash. The cash option of placing an amount of cash or deposit into an account with DMR or specified by the Minister.⁷³

Other variations the methods used to secure provisions include Insurance and Bonds, the latter is recent, linked to the financial markets and caters for environmental and green bonds (market).⁷⁴

The insurance instrument, is popular in SA and USA jurisdictions. It entails taking up an insurance policy as a contract between an insurer and an insured (policyholder).⁷⁵ The insurer agrees to pay the amount of indemnity specified in the policy to the insured on the occurrence of an event, the regulator may impose certain conditions relating to the policy being underwritten as well as restrictions on cancellations. The problems associated with insurance include the lapsing/non- payment of premium as well as the withdrawal of the policy guarantees by the insurer.

The applicant or holder of authorisation must choose any instrument through which environmental liability costs will be put aside. These instruments discussed above are in line with the vehicles to be used to secure the availability of financial provisions purported by the Act. The regulations provide for setting up of the instrument, the format and procedures for withdrawal therefrom.⁷⁶

Shiva Mine Case illustrates the challenges around the use of insurance as mechanism to secure financial provisions and the increased risk when the insurance company seeks to withdraw the guarantees.⁷⁷ The mine here had a financial provision to the amount of R61 424 275 provided in a form of several insurance guarantees issued by Guard Risk Insurance Company. Liability report indicated a shortfall amount of R38 594 383. the failed to provide the shortfall despite notice by the DMR. The Insurance company issued a notice to withdraw its guarantees.

The trends in other jurisdictions show preference towards the use of Bonds. This could be effected through the following forms, an on-demand performance bond *i.e.* a financial instrument issued by a financial institution such as a bank or a specialist provider acceptable to the DMR.⁷⁸ It is essentially a promise on the part of the surety to immediately pay the cost of complying with the licensee's

⁷² Regulation 8(1) (a) of the 2015 financial

⁷³ Otto JM "Global trends in mine reclamation and mine closure regulation" 2009, 250 -288.

https://books.google.co.za/books?id=dQGzsw6g8NsC&pg=PA251&lpg=PA251&dq=Otto+jm+2009+global+trends+in+mine+reclamation&source=bl&ots=wdKwNC32QQ&sig=ACfU3U0QA7UGUn7QY21AEeWkZ7u50KCJsQ&hl=en&sa=X&ved=2ahUKEwjm1Y_40_3IAhWSXRUIHRIQDXoQ6AEwAnoECAoQAAQ#v=onepage&q=Otto%20jm%202009%20global%20trends%20in%20mine%20reclamation&f=false

⁷⁴ World Bank, "Guidelines for the implementation of financial surety for mine closure" 2009

http://siteresources.worldbank.org/INTOGMC/Resources/7_eifd_financial_surety.pdf, accessed 2019.02.20.

⁷⁵ A report by World Wide Fund for nature, Van Zyl H "Financial provision for rehabilitation and mine closure in South African mines" 2012, http://awsassets.wwf.org.za/downloads/wwf_mining_8_august_low_res.pdf (accessed 2019-03-15).

⁷⁶ Regulation 8 (1) of GN 1147 REGULATIONS pertaining to the forms of vehicle to secure financial provision.

⁷⁷ Parliamentary report of the portfolio committee on oversight of the Shiva Uranium mine.

https://pmg.org.za/taled-committee-report/3620/accessed_2019.8.12

⁷⁸ RABbie MA, Wells JD and Van Meubels "Terrestrial Minerals" HA Strydom and ND King(editors), 2009 at 45.

obligations if the licensee fails to do so. Notwithstanding the aforementioned methods of securing provision, the Director General may determine a method to be used, where necessary. The holder may holder may also opt for a combination of any of the above.

In South Africa, a large number of mining operations chose the Trust Fund as method for financial provision and that caused a shortfall in the overall liability in case of premature closure.⁷⁹ This shortfall was, in most cases, not covered by any of the other methods. The annual contributions to a trust fund are tailored for funding the final mine closure over the life of a mine.⁸⁰

"Financial provision determination" means the calculation of the cost of the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts.⁸¹

Different financial scenarios of closure will include: planned closure, unplanned or sudden closure or temporary closure. The former scenario is self-explanatory while the latter scenario 'unplanned mine closure' occurs when planning was not provided for in the initial stages of the mine until the last stage leaving little time for the provisions to accumulate.

3.3. Conclusion

Many mining entities contribute to a separate fund established to help fund closure and environmental obligations. These funds may be required by regulation or law or may be voluntary. There is flexibility in the choice of an instrument to be used. It is hard to determine whether any mining operation holds sufficient money for rehabilitation and mine closure.⁸² This is on the grounds that there is no transparency regarding the financial information of the amount set aside, particularly the persons administration are not known and the value set aside and accessibility. The issue is aggravated by the way that the DMR's consistence checking and requirement of restoration commitments is poor.

In south Africa, the instruments used to secure financial provision are in line with the international standards. These mechanisms, though not tested, appear not to be the problem. Other jurisdictions have successfully used similar financial instrument. Thus, an evaluation of the efficiency and effectiveness of a particular instrument used in South Africa cannot be conclusively be determined.

The state bears the responsibility to ensure funds set aside for rehabilitation and closure of mines are channelled properly as well as spent correctly for that specific purpose. Furthermore, the advantages as well as challenges occasioned with each instrument are discussed in this chapter. Governments often require mining companies to contribute to the costs of environmental liability and mine closure in order to ensure that sufficient funds are available to realise the objectives occasioned with proper end of the mining operations.

⁷⁹ A report by World Wide Fund for nature, Van Zyl H "*Financial provision for rehabilitation and mine closure in South African mines*" 2012, http://awsassets.wwf.org.za/downloads/wwf_mining_8_august_low_res.pdf (accessed 2019-03-15).

⁸⁰ *ibid.*

⁸¹ Regulation 6 pertaining to the method of determining the actual provision for remediation and decommission.

⁸² Guidelines "*Guidelines for rehabilitation of mined land*" 2007 CHAMBER OF MINES OF SOUTH AFRICA/COALTECH. <https://www.mineralscouncil.org.za/work/environment/environmental-resources/send/26-environmental-resources/349-rehabilitation-guidelines-29november> accessed 2019.5.12.

Monitoring and enforcement by the DMR is crucial in ensuring that the mining companies comply with the regulations intended to facilitate the gradual building up and preservation of funds to address the environmental liabilities.

The next chapter will explore the current domestic regulatory framework governing mine closure. Specific South African environmental liability legislation and matters incidental thereto will be considered.

CHAPTER 4 - SA LEGAL FRAMEWORK

4.1. Introduction

The Constitution, NEMA, the MPRDA and the NWA all provide the statutory framework for responsible environmental management.⁸³

The right to a healthy environment is entrenched in our constitution. This means that every person is entitled to live in an environment that is habitable, healthy, and free from environmental pollution and harm. The State has an obligation to protect everyone right to a healthy environment.

Section 24 provides that: Everyone has the right:

- To an environment that is not harmful to their health or well- being;
- To have an environment protected through reasonable legislative measures.⁸⁴

The legislation that regulates environmental issues and financial provisions regarding mine closure has been moved from domain of the MPRDA and now same is largely regulated by the NEMA.⁸⁵ A distinctive feature that from both Acts is the encouragement and promotion of Sustainable development within the extractive industry.

A full discussion of the legislation and regulations are discussed further in the following subheading dealing exclusively with Financial provisions in 4.2 below.

4.2. Legislative framework

The MPRDA puts emphasis on the Sustainable development and environmental protection. Sustainable development is defined in the Act as the “integration of social, economic and environmental factors into planning, implementation and decision making so as to ensure that mineral and petroleum development serves present and future generations”.⁸⁶ Any prospecting or mining operation must be conducted in a manner that complies with the generally accepted principles of sustainable development.⁸⁷ In addition, the right holder is responsible for any damage, pollution and degradation to the environment and its ecosystem as a result of the mining operation.⁸⁸ Environmental principles relating to environmental management and plans as well as the EIA must be adhered to.

⁸³ Alberts, R., Wessels, J.A., Morrison-Saunders, A., McHenry, M.P., Rita Sequeira, A., Mtegha, H. and Doepel, D. (2017) Complexities with extractive industries regulation on the African continent: What has ‘best practice’ legislation delivered in South Africa? *The Extractive Industries and Society*, 4 (2). pp. 267-277. <https://www.sciencedirect.com/science/article/pii/S2214790X16301010?via%3Dihub>, accessed 2019.5.02.

⁸⁴ Section 24 of the Constitution of South Africa act 106 of 1996.

⁸⁶ Sec 1 of the Mineral and petroleum resources development Act 28 of 2002.

⁸⁷ Sec 37(2) of the Mineral and petroleum resources development Act 28 of 2002.

⁸⁸ Glazewski J *“Environmental Law in South Africa”* 2nd edition (2004) 469.

Environmental plans provide information relating to plans on how to manage and rehabilitate the environmental impact as result of mining operations pursuant to the authorised right/permit as the case may be. An Environmental programmes and assessment should include amongst other things a description of how the resultant degradation and pollution will be remedied, modified, controlled and contained to comply with the management standards and practices.

NEMA fortifies the position of the Constitution regarding section 24. in its introduction, it provides that everyone has the right to have the environment protected, for the benefit of present and future generations through legislation and other measures.⁸⁹ The aim thereof is prevention of pollution and degradation of the ecosystem; promotion of conservation and sustainable development and; finally, promoting optimal use of natural resources while promoting justifiable economic and social development.⁹⁰ This means that any harm, pollution and degradation of the environment should be avoided, mitigated and remedied, where possible.⁹¹ The act further, states that negative impacts on the environment must be anticipated and avoided, minimised and remedied.⁹² The Act imposes a duty of care and remediation to industry players. The person who causes significant of environmental pollution and degradation must take reasonable steps to prevent same from occurring, continuing or recurring.⁹³ Where such harm is authorised by law or cannot be avoided, then the person must minimise and rectify such pollution or degradation.⁹⁴

Section 24P every holder must comply with the prescribed provision for rehabilitation, closure and post closure decommissioning management of negative impacts. If the right holder fails or is unable to manage the impact on the environment or carry out the undertaking to rehabilitate or manage such impact, then the Minister may use all the financial provision or portion thereof, to meet such environmental task.⁹⁵A written notice to the right holder is required.

The provisions of section 24P echo those contained in section 45 of the MPRDA. The MPRDA empowers the Minister, upon noticing degradation or harm to the environment, potential threat health or to prevent further deterioration of the situation, to issue a directive to the holder to investigate the causes thereof and report thereon as well as take the necessary action as per the directive of the minister. The procedure requires the minister to approach a court for permission to seize and sell the property belonging to the holder for the purposes of satisfying or to cover the costs of carrying out the aforementioned measures contained in subsection (2)(b) of preventing further harm.⁹⁶ However, the holder must first be afforded an opportunity to make representation.⁹⁷ If the order is obtained by the minister proceed with aforesaid measures, the money appropriated by parliament for the said purpose to fully implement the such measures.⁹⁸

⁸⁹ Section 24 of the Bill of rights of constitution Act 108 of 1996.

⁹⁰ National Environmental Management Act 107 of 1998.

⁹¹ Sec 2(4) (ii) of the Act National Environmental Management Act 107 of 1998.

⁹² Sec 2(4) (viii) of the Act National Environmental Management Act 107 of 1998.

⁹³ Section 28 of the NEMA.

⁹⁴ *ibid.*

⁹⁵ 24P (2).

⁹⁶ Section 45(2)(c) of MPRDA.

⁹⁷ *Ibid* section 45(2)(b).

⁹⁸ *Ibid* section 45(2)(d).

The requirement to maintain the financial provision referred to in this section by the right holder remains, notwithstanding the issuance of the closure certificate by the MPRDA Minister and the Minister may retain such portion required to rehabilitate closed mining operation in respect of latent and residual or other environmental impact, including pumping of water of polluted water and extraneous for a prescribed period.⁹⁹ If the holder fails, then the Minister may take appropriate action to stop further pollution or harm to the environment.¹⁰⁰

Section 46 of the MPRDA empowers the Minister to remedy environmental damage in the event the holder of an old order right or the previous owner of works or as the case may be successor in title is deceased or cannot be traced or in the case of a juristic person, has ceased to be liquidated or cannot be traced.¹⁰¹ This must be funded from the financial provision made by the aforementioned holder. In the event the said funds are inadequate or don't exist, then the minister can use the funds appropriated by parliament for the said purpose.¹⁰²

In this regard section 19 of the National Water Act provides for the prevention and remedying the effects of pollution of the water resource.¹⁰³ These measures include ceasing, modifying the pollution causing action, complying with waste management practices, prevent movement of pollutants, eliminate source of pollution and remedy the effects of any disturbance.¹⁰⁴

The common problems related to water contamination and that has been huge issue in South Africa involved Acid Mine Drainage. AMD is generated when sulphide bearing minerals, often in the form of pyrite found in the reefs of mined areas, are exposed to both oxygen and water during the day-to-day operations of the mine. This method of pyrite oxidation, produces sulphuric acid and dissolved iron.¹⁰⁵

The changes to the law were made in 2002 to ensure that the polluter must pay thereby preventing a situation where the state and taxpayers end up paying for the environmental harm. This implied that environmental impacts by a mining house had to be addressed retrospectively, irrespective of when or who caused the damage. The holder of the right could not raise the defences such as "historic" origin of the environmental harm.¹⁰⁶

⁹⁹ Section 45(1) of MPRDA.

¹⁰⁰ *Ibid* Section 45(2).

¹⁰¹ Section 46 (1) empowers Minister to remedy environmental damage, in order to realize measures contemplated in section 45, where the holder or successor can't be traced or deceased or liquidated.

¹⁰² *Ibid* section 46(2) relating to funding of environmental damage where holder is unable or can't be traced or liquidated.

¹⁰³ Section 19 of National water Act 36 of 1998 provides that An owner of land, a person in control of land or a person who occupies or uses the land on which- (a) any activity or process is or was performed or undertaken; or (b) any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

¹⁰⁴ Section 19 (b) of the National Water Act 36 of 1998.

¹⁰⁵ DWS press release "AMD long term solution feasibility study deliverables" 22 March 2012, <http://www.dwa.gov.za/Projects/AMDFSLTS/> accessed 2019.08.19.

¹⁰⁶ Section 28 of NEMA.pertaining to the duty of care and remediation of the environment.

Secondly, the polluter pays principle was extended to emphasise the perpetual liability.¹⁰⁷ This means responsibility for latent defects as result of mining operations continues to endure despite the issuing of the closure certificate.¹⁰⁸

This was confirmed in the case of **Harmony Gold v Free State, department of water affairs** where the mining company was held responsible despite the fact that it severed all legal ties to the land where mining operations were carried on. Thus, the obligation by the mining company to pump and treat acid mine water continued despite the fact the land in question belonged to another company.¹⁰⁹

However, the said changes have proven not to be effective in achieving desired goal, as seen in the Mintails Case.¹¹⁰

4.3. Financial provisions and the Regulations

The financial provisions regulations have undergone a series of proposed regulatory changes from the 2015, 2017 and 2019.¹¹¹ This section will deal with the key aspects of the financial provision.

It's important to note that the evolution leading to the current proposed financial provision, prior to regulation, the situation was governed by the MRPDA. Notwithstanding the numerous proposed regulations mentioned above, which are not finalised, the regulations relating to financial provision currently in use is the 2015 regulatory framework with the hope that the final adoption of the 2019 proposal will repeal the 2015. Moreover, the said regulations are currently also in the process of being reviewed and replaced in response of the comments received from the public and interest groups.

There is a confusion which is created by unclear, poorly drafted, incomparable and inconsistent disclosures that is exacerbated by proposed corrections and amendments to the applicable environmental laws.¹¹² This leads to uncertainty as to how financial provision will be regulated in the future.¹¹³

Before commencing with mining operations, a company is required to submit an Environ management programme preceding the authorisation licence or permit.¹¹⁴ The purpose of the plan is to show what are potential environmental impacts likely to arise from the proposed mining operation and

¹⁰⁷ DMR guideline on Principles of Sustainable Development "2016/2020 Environment Management Plan" <https://cer.org.za/wp-content/uploads/1999/01/DMR-EMP.pdf> accessed 2019.6.07.

¹⁰⁸ *Ibid.*

¹⁰⁹ Harmony GOLD mining company limited v FREE STATE, Department of Water affairs 2005 JDR 0465 (SCA).

¹¹⁰ Africa News Agency Report., "A battle to hold the mining company accountable" published 26. 02. 2019, <https://www.iol.co.za/saturday-star/a-battle-to-hold-mining-company-accountable-19518065> accessed 2019.08.19.

¹¹¹ On 17 May 2019, the Minister of Environmental Affairs for South Africa promulgated the Regulations for Financial Provision for Prospecting, Exploration, Mining and Production Operations – the Financial Provisioning Regulations – published under GG notice 42464 which replaced the 2010 Government Notice R1147 (GNR 1147) in Government Gazette 39425 of the same date.

¹¹² A report "full disclosure - the truth about mine rehabilitation in South Africa" Centre for Environmental Rights" 2018, <https://fulldisclosure.cer.org.za/> accessed 2019.06.5.

¹¹³ *Ibid.*

¹¹⁴ Sec 44 NEMA.

assessment significance summary thereof, how the company intends to carry out the mitigation and management measures to address such adverse impacts on the environment.¹¹⁵ Furthermore, the EMP must contain information relating to the financial provision *i.e*

- (a) how the quantum is determined, usually this requires particulars of the person/entity responsible for the calculation thereof. how the contributions towards the costs of rehabilitation and mine closure will be estimated.¹¹⁶
- (b) Details relating to the instrument or financial security method to be utilised to secure such provision.
- (c) Details of plans relating to the monitoring and assessment of the EMP.¹¹⁷
- (d) Details of the closure and environmental objectives.
- (e) Undertaking by the applicant pertaining to the implementation of the EMP.¹¹⁸

The said plan and any subsequent revisions should be verified and approved by the DMR.¹¹⁹ Furthermore, the contributions or the amounts so set aside for fixing the environmental liabilities for rehabilitation and mine closure must be included in the mining company's financial report as a provision. The said rehabilitation plan must be compiled by specialists.¹²⁰

Moreover, these regulations prescribe how the holder should determine, set aside, maintain and manage the financial security for undertaking the progressive rehabilitation, closure and post closure related activities.¹²¹ Therefore, the money to set aside must be collected during the operating life of a mine to cover environmental liabilities that that may arise towards rehabilitation and the closure of such operations.

The aim of financial provision to cover rehabilitation expenses as well as closure and post decommissioning management of negative environmental impacts that may emerge from the operations.¹²²

The recognised methods for securing the financial provisions for meeting the future environmental obligations are bank guarantee or that from a registered financial service provider; cash deposit and trust fund. Alternatively, any combination of the foregoing.¹²³

The trust fund and contributions thereto can't be used for annual rehabilitation, or to carry out obligations relating to future rehabilitation, decommissioning and closure when the operations cease.

¹¹⁵ Wells JD, Van Meubels LH and Rabbie MA " *Terrestrial minerals*" HA Strydom and ND King(editors), 2009 513- 578.

¹¹⁶ *Ibid.*; See also section 44.

¹¹⁷ Regulation 9 (1).

¹¹⁸ Section 44 of NEMA

¹¹⁹ *Ibid.*

¹²⁰ See footnote. 115.above.

¹²¹ Regulation 4 and 6.

¹²² *Ibid* Regulation 2.

¹²³ Regulation 8(1).

Further, the applicant and holder of the mining permit in terms of MPRDA can't use contributions to the trust.¹²⁴

The proof of payment or arrangement for financial provision must be provided.¹²⁵The 2015 regulations provide that the provision must be determined with the primary aim of allocating the provision towards meeting of the obligations of annual rehabilitation to be discharged by the applicant or holder; allocation of the provision for the final rehabilitation, decommissioning and closure of the operations at the end of life of the mine operations. Moreover, the provisions should be set aside to address the remediation for latent and residual impacts of the environment including the pumping out of the extraneous water.¹²⁶

4. The quantum of the financial provision is to be determined according to the provisions of the regulation 54 and 55 of the MPRDA and the guideline document from the Department of mineral resources published in 2005 titled the "evaluation of the quantum of closure-related financial provisions by a mine."¹²⁷
5. The applicant or holder is further required to ensure that financial provision equal to the actual cost of plan are made available for a period of 10 year.¹²⁸The holder must decide the monetary provision through a point by point itemisation all activities considered and costs required for final rehabilitation, decommissioning and conclusion of the prospecting, exploration, mining or generation activities toward closure of a mine.¹²⁹
6. The determination of financial provision contemplated must be calculated based on the actual costs of implementing the plan for rehabilitation, decommissioning and mine closure plan. The total amount and entries used in the calculation process must be reflected in the environmental plan in terms of section 24N of the Act.¹³⁰ This includes remediation of inactive or remaining natural effects which may transpire later on, including the pumping and treatment of polluted or extraneous water.¹³¹
7. The standard deed of trust from the DMR must serve as a guiding document as envisaged by provisions of regulations 8(7). The format of the financial guarantee and trust deed is prescribed in the regulations be followed in appendix 1 and 2.¹³²
8. Prior to the approval of the EMP and before the issuing of the environmental authorisation,¹³³ the proof of payment of the provisions put in place or arrangements thereof should be submitted to and approved by the Minister The said proof of payment must be accompanied further, by a verification of the financial institution.¹³⁴

¹²⁴ Regulation 8(3).

¹²⁵ *ibid* regulation 10(b) read with 9(3).

¹²⁶ *ibid* Regulation 5 relating to the scope of the provision.

¹²⁷ See footnote 52 relating to guidelines for determining quantum.

¹²⁸ Regulation 7 requiring the applicant or holder to make available the financial provision for a specified period of 10 years and the sum total must be equal to the actual cost of carrying out the plan contemplated in the report.

¹²⁹ *ibid* fn 117.

¹³⁰ Regulation 12(4) relating to preparations and submission of plans.

¹³¹ Regulation 6 relating to the methods of determining of the financial provision.

¹³² Regulation 8(2).

¹³³ Regulation 10(b).

¹³⁴ See regulation 9(4).

9. The holder is required to assess the adequacy of the sum of the financial provision as determined in of these Regulations and approved by the Minister responsible for mineral resources within one year of the effective date of the prospecting right, exploration right, mining permit, mining right or production right, and annually thereafter.¹³⁵ An adjustment of the provisions must be performed annually by a qualified person(s) who specialise in the particular field and audited by an independent auditor.¹³⁶ In this regard the specialist refers to a mining engineer, a surveyor and an environmental assessment practitioner.¹³⁷
10. The requirement to maintain the financial provision continues to be in force until the minister issues a certificate approving closure.¹³⁸ However, the Minister may withhold a part of the provision necessary to carry out rehabilitation and management of environmental impacts.¹³⁹ The minister must return the portion of the financial provision after issuing of the said certificate.¹⁴⁰

The right holder is legally obliged upon discontinuation of the operations on a mine or part thereof, to discharge rehabilitation obligations and closure operations in order to prevent and control pollution at such mining operations.¹⁴¹ The aim of this is to bring the area back to an agreed environmental state and to bear the cost of such rehabilitation, prevention and control. This is in fulfilment of the duty in terms of section 24N requiring the holder to carry out rehabilitation for any environmental degradation and to mitigate same and make efforts in order to prevent further damage to environment.¹⁴²

4.3.1 Financial Provision and Environmental Liability

According to the CER the system of securing financial provisions by mining companies has failed in South Africa.¹⁴³ An examination of the mining companies' financial provisions that are publicly available and respective activities in south Africa were utilized to reach inferences about the arrangements made and the assets accessible.¹⁴⁴

An investigation, commissioned by CER relating to financial provision for environmental liability by SA mining houses in 2018 was conducted by Intellidex".¹⁴⁵ Reports of 11 mining companies relating to provisions for management and remediation of environment aspects was studied (see Table 1 below) and the results interpreted.

¹³⁵ Regulation 11(2) of the Act.

¹³⁶ Regulation 11(3).

¹³⁷ Regulation 9 (1).

¹³⁸ Sec 43 of MRPRDA.

¹³⁹ Ibid 43(6).

¹⁴⁰ *Ibid.*

¹⁴¹ *Ibid.*

¹⁴² 24N of NEMA.

¹⁴³ Intellidex report, OTambo and S Theobald, "Financial Provisioning for Rehabilitation and Mine Closure" May 2018 <https://fulldisclosure.cer.org.za/2018/wp-content/uploads/2018/06/Intellidex-financial-provisioning-for-rehabilitation-and-closure-in-SA-mining.pdf> accessed 2019.4.12.

¹⁴⁴ *Ibid.*

¹⁴⁵ *Ibid.*

Company	Rehabilitation provisions (Rm)	Rehabilitation funds (Rm)	% funded
Exxaro resources	4721	1401	29.7%
Anglo Platinum	1938	1015	52%
Lonmin	1743	137	8%
Impala Platinum	764	225	30%
Northam	259	252	97%
Atlatsa	189	50	27%
Eastern platinum	113	124	110%
Royal Bafokeng	96	147	153%
Westcoal	60	22	37%
Wesizwe Platinum	54	28	52%
MC Mining	34	4	12%

Table 1: Financial provisions and the estimation of recovery assets in the organizations' 2016/17 yearly reports. Adapted from intellidex report commissioned by CER "FINANCIAL PROVISIONING FOR REHABILITATION AND MINE CLOSURE" MAY 2018.¹⁴⁶

Research found that the rules governing disclosure with respect to the provisioning put aside and how it is invested by mines are poor and inconsistent. This is caused largely by what the companies report and lack of detail in the reported information.¹⁴⁷ further, Large mining companies with multiple operations report their provisions in their financial report as a consolidated amount instead of breaking down the figures into different operations and setting out how much financial provision is held for each operation.¹⁴⁸ The reporting here does not happen at the operational level. Therefore, it is hard to tell how much financial provision is available for mine rehabilitation and mine closure. In contrast, a single mine operation can be clearly show how much is apportioned for the environmental liability. therefore, disclosures must be carried out at operational level not at group stage.

The research results indicate that the financial Liability for rehabilitation and mine closure of the 11 mines reported therein showed an upward expansion from R5bn in 2011 year to R10bn in the latest financial year.¹⁴⁹ The study found, the companies mentioned herein, each put aside financial provision in separate funds. A part of these are joint industry reserves while others are set up by the organizations themselves. further, 33% of the 11 organizations revealed and reported financial provisions at the completion of FY16.

ideally, the equalization must be financed before tasks stop with the ultimate objective that the provision can be met with the financing that has been spared. Meanwhile, the shortfall secured by

¹⁴⁶ INTELLIDEX REPORT, TAMBO O AND THEOBALD S, "FINANCIAL PROVISIONING FOR REHABILITATION AND MINE CLOSURE" MAY 2018 [HTTPS://FULLDISCLOSURE.CER.ORG.ZA/2018/WP-CONTENT/UPLOADS/2018/06/INTELLIDEX-FINANCIAL-PROVISIONING-FOR-REHABILITATION-AND-CLOSURE-IN-SA-MINING.PDF](https://fulldisclosure.cer.org.za/2018/wp-content/uploads/2018/06/INTELLIDEX-FINANCIAL-PROVISIONING-FOR-REHABILITATION-AND-CLOSURE-IN-SA-MINING.PDF) ACCESSED 2019.4.12.

¹⁴⁷ *ibid.*

¹⁴⁸ *ibid.*

¹⁴⁹ *ibid.*

financial assurances from 3rd parties. Table 1 demonstrates the financial estimation of environmental liabilities by companies for 2016/17 financial yearly reports. The entries were collected from the Intellidex report.

The rehabilitation provisions measured against the rehabilitation funds for the 11 companies show a steady increase. Also, in excess of 33% of the environmental liabilities put aside use trusts and cash deposits as financial security vehicles. This implies that the remainder of the environmental liabilities by mining houses accounting for 66% is done through other off-balance sheet instruments, for example, insurance and bank guarantees.¹⁵⁰ The reasons advanced for this increase point to the declining average life of the domestic mine. Intellidex study suggests that the disclosures that mining houses publicly make available do not provide sufficient information about the financial provision for environmental liabilities and mine closure.¹⁵¹

The **Mintail Mine Case** study highlights the of failure to keep financial provisions to remediate the impact caused to the environment. A mining company was allowed to operate without approved environmental plans and did not comply with the requirements relating to the setting aside of the financial provisions. Mintails Mine is situated on the west has been red flagged as causing environmental damage. This left a huge environmental liability mess totalling R460 000 000 and only had R25 000 000 for financial provision. The damage was largely due to unfunded environmental liability, open clusters of open pit 40m deep, partially reclaimed tailings storage facilities, unrehabilitated footprints, toxic and radioactive dams. This Upon investigation it was confirmed that poor regulatory oversight by the DMR and DWS was the cause of the environmental. The DMR allowed the Mintails to operate between 2012 and 2018 period despite not having approved EMP and without the right to mine under law. The mine collapsed and subsequently liquidated.

Table 2: Environmental liability and Financial provision (unavailability of financial provision). Adapted from Portfolio committee report ATC no. 174/2018 on Mintails.¹⁵²

Ref No.	Liability	Amount Provided	Form of Provision	Shortfall
GP 132 MR	88 727 794.19	23 001 853	Trust Fund	65 727 794.19
GP 133 MR	13 678 265	0.00	-	13678 265
GP 206 MR	383 561 751.88	2 600 000	Bank Guarantee	380 961 751.88
Total	485 967 811.07	25 601 000		460 367 811.07

¹⁵⁰ *Ibid.*

¹⁵¹ *Ibid.*

¹⁵² PORTFOLIO COMMITTEE REPORT ATC NO. 174/2018 ON MINTAILS, ON ITS OVERSIGHT, 13 SEPTEMBER 2018, <https://pmg.org.za/taled-committee-report/3620/> accessed 2019.10.11.

4.4. Conclusion

SA environmental laws compare highly with world's standard. The emphasis highlighted by NEMA in its preamble is that the person who is responsible for the environmental degradation, pollution, ecological harm is responsible for the environmental liabilities and subsequent cleaning up of such disturbance.¹⁵³ The law further entrenches everyone's right to a cleaner and safer environment.¹⁵⁴

Mining companies are required by law, through use of financial security mechanisms, to make provision for the future expenses relating to the rehabilitation and mine closure. In response thereto, NEMA. The formulation of the regulations pertaining to the financial provision for rehabilitation and mine closure (2015 regulation).¹⁵⁵ Prior to the regulation, the process was regulated under MPRDA which sought to promote sustainable development and environmental protection.

The proposed regulations are a subject of ongoing debate, currently under review and have not yet been finalised into law. the regulations specify the scope, determination and assessment as well as the adjustment of the financial provisions.

According to the CER, the system of securing the financial provisions by mining companies has failed in South Africa. The reasons advanced for the failure are poor disclosure of financial provision and investment thereof.

Poor institutional capacity and oversight over the basic compliance processes relating to plans and permits required before mining could continue are not observed and allow a mine to operate without making contribution to financial provision, the Mintails mine case.

The reasons aforementioned cannot solely be attributed to lack of legislation or regulation. Others point to systematic factors, accounting principles relating to disclosure and capacity issues within the DMR.

¹⁵³ The preamble of NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998.

¹⁵⁴ Sec 24 of the Constitution of South Africa Act 106 of 1996.

¹⁵⁵ 2015 regulation of the NEMA act 107 under Government gazette notice 1147 pertaining to the financial Provision for Prospecting, Exploration, Mining or Production Operations, published 17 May 2019 (**Financial Provision Regulation**”).

CHAPTER 5 - EVALUATION AND ANALYSES

5.1. Introduction

Proper closure is attained only when a closure certificate is issued.¹⁵⁶ Mines that cease operations without being awarded the closure certificate are not properly closed. These mines add to the list of abandoned mines and the environmental hazards.

Unscrupulous business practices make it possible for mine companies to evade liability associated with rehabilitation and closure. Mining houses make a mockery of the Polluter must pay principle. There is reluctance on mining companies and government to close mines. The encountered difficulty could be linked with the huge Job losses that must accompany the closure of a mining operation.

A data investigative research relating to the state of mine closure is explored in this chapter (see table 1 below). The DMR traditional stance regarding making available data and information relating to the money held for financial provision for mine rehabilitation and closure has been one of secrecy coupled with reluctance. A request through the PAIA (Promotion of access to information Act) was done in order to examine the records of financial provisions and state of mine closure in South Africa. It focused on the period between 2012 -2016 and another source of data is parliamentary question session initiated by a member of parliament and subsequent answers thereto.¹⁵⁷

An examination is conducted of the likely causes contributing to the difficulty surrounding the issue mine closure certificates in relation to the type of authorisation granted. According to the MPRDA, mining authorisations can be divided into mining rights, permits and prospecting licence. The former relates to rights conferred to the holder in relation to a specific land to resume mining including remove and dispose of any such mineral found during the course of operations while the "Permit" authorisation involves operations restricted to 5 hectares as well as 5-year period permit. The "prospecting licence" occurs in the initial stages of the mine during exploration.¹⁵⁸

Most pollution or environmental harm results from operations of the large mining operations. Consequently, large mining houses account for the largest proportion of the financial provision contributed.¹⁵⁹

Firstly, the obvious causes relate to institutional capacity and lack of oversight on the part of the DMR. The poor capacity within DMR to monitor compliance and enforcement allow the mining companies an opportunity to take escape liability because there is no proper oversight. The regulation of mining

¹⁵⁶ Section 43(1) of the MPRDA.

¹⁵⁷ Parliamentary questions to the Minister of Mineral Resources, 22 April 2016, <https://pmg.org.za/committee-question/2967/accessed> 2019.8.01.

¹⁵⁸ Section 5 of MPRDA relating to the legal nature of rights awarded in terms of the Act and the holders thereof.

¹⁵⁹ an investigative report dated by Oxpeckers titled "R60 billion held for mines that never closed" <https://oxpeckers.org/2017/05/r60-billion-held-mines-never-closed/> accessed 2019.08.19.

is a national competence, it is operationalized by nine regional offices, largely aligning to the provinces.

Secondly, “transfer of rights”. The practice by large mining houses of avoiding mine closure by selling their rights to new smaller mine companies thereby transferring their obligations to environmental liability. The junior mining companies operate on slim profits, often the junior mine, have not accumulated sufficient financial provisions and must replace the large mining houses.¹⁶⁰ Professor Humby labels this as “passing the parcel” approach and states “*where the “gift” ends up in the hands of the weakest, seriously undermines the value and integrity of the forward planning approach to mine closure. Where the last link in the chain of mining companies operating a site then fails to apply for a closure certificate, it also undermines the rule of law*”.¹⁶¹ This was illustrated in the Aurora and blyvoorzicht mines as well as the Richterfield Mines.¹⁶²

Thirdly, the observed trends show a preference by mining houses towards “Care and Maintenance” approach which also adds to the aforementioned causes. When a specific mining operation experiences money related, operational, technical, environmental, financial or labour related difficulty, it is normal practice for mining organizations to put it on purported “care and maintenance”.¹⁶³ Essentially, it means deferment of payment of owner’s liabilities or portion thereof with the hope to review the position when the circumstances improve *i.e.* an adjustment in economic situations would make the mining company profitable. Therefore, production ceases but the mine is not closed. A skeleton staff is held, and costs towards environmental expenditure are kept low, with no rehabilitation occurring. Be that as it may, there is no time period for this and it can prompt an uncertain delay of conclusion and restoration commitments.

Crocodile River mine – subjected to care and maintenance in July 2013 and production halted until economic and sustainable production can be guaranteed. 2 500 jobs affected triggering retrenchment process.¹⁶⁴

Fourthly, the secrecy and lack of transparency surrounding the financial provisions add to the problem. The government does not make the information available for public scrutiny. This is a common sentiment advanced by civil society groups who advocate for transparency and accountability.¹⁶⁵ The

¹⁶⁰Mail & guardian “*Mines left to pollute the soil*” Olade M, <https://mg.co.za/article/2017-04-04-mines-left-to-pollute-the-soil> April 2019.accessed 2018.11.12.

¹⁶¹ Humby TL, “Facilitating dereliction? How South African regulatory framework enables mines to circumvent closure duties” https://www.academia.edu/8621292/Facilitating_dereliction_How_the_South_African_regulatory_framework_enables_mining_companies_to_circumvent_closure_duties.accessed 2018.10.18.

¹⁶² Mail and guardian “*Richtersveld diamond deal leaves locals with dirt*” Groenewald Y, 18 March 2019, <https://www.businesslive.co.za/bd/companies/mining/2019-03-18-how-richtersveld-diamond-deal-leaves-locals-with-dirt/> accessed 2019.5.20.

¹⁶³ Regulation 16 of the Act.

¹⁶⁴Mining News “*Crocodile River mine to be placed on care and maintenance*” 2013, <https://miningnews.co.za/2013/06/25/crocodile-river-mine-to-be-placed-on-care-and-maintenance/> accessed 2019.2.15.

¹⁶⁵ *Ibid.*

aforsaid reporting is inconsistent, unreliable and not comparable between companies. Therefore, it's makes it difficult to hold mining house accountable.¹⁶⁶

5.2. Data analysis

The first study of INTELLIDEX utilises financial data from the companies' annual reports of preceding five years.¹⁶⁷ For companies that reported in foreign currencies, a conversion into Rands was done by multiplying the balance sheet figures by the exchange rate at the date of the financial year-end of that company.

The financial Liability for rehabilitation and mine closure of the 11 mines mentioned have expanded from R5bn to R10bn. Of the 11 large mining companies reported, only 3 appear to be adequately funded and reached the 100-percentage mark or more. These are Eastern Platinum (110%), Royal Bafokeng (153%) and Northam (97%). The funded environmental provision of the remaining 8 mines range from as low as 8% to 52%, with only two mine account for a percentage above 50% mark.¹⁶⁸

Another survey of the data driven investigation conducted by the "Ox peckers" reveal that there is a lot of money being held by the government or that has been set aside as financial provision for remediation of the environmental impact caused by operations of the mining houses.¹⁶⁹ The investigation further indicates that the amount so held is believed to be in excess of R 60 Billion Rands for rehabilitation of mines across South Africa. The said amount is not being spent by the state or cannot be touched to address the environmental liabilities and ensure closure.¹⁷⁰ This is a problem because most mines are not deemed legally closed and yet there are the funds available to facilitate closure.¹⁷¹

The money kept as financial provision cannot be touched while the mining company is still operational, the DMR can only use the funds if the mine has been abandoned and often when the government is expected to step in and assist with the closure. In this regard, the DMR is unable to quote an occasion when the financial provisions were ever so used. Research shows that large mines cannot be closed properly.¹⁷²

The natural and social effects of mining depend to a great extent on the product mined, its area, and the sort of mining undertaken. Corrosive mine waste (AMD) is a noteworthy worry in the gold and coal mining divisions in South Africa.¹⁷³

¹⁶⁶ The UNDERMINERS "mining rehabilitation in South Africa" <https://www.theunderminers.co.za/mining-rehabilitation-in-south-africa/> accessed 2019.

¹⁶⁷ Intellidex report, OTambo and S Theobald, "Financial Provisioning for Rehabilitation and Mine Closure" May 2018 <https://fulldisclosure.cer.org.za/2018/wp-content/uploads/2018/06/Intellidex-financial-provisioning-for-rehabilitation-and-closure-in-SA-mining.pdf> accessed 2019.4.12.

¹⁶⁸ *ibid.*

¹⁶⁹ Oxpeckers report "R60 billion held for mines that never closed" 2016. <https://oxpeckers.org/2017/05/r60-billion-held-mines-never-closed/> accessed 2019.08.19.

¹⁷⁰ *ibid.*

¹⁷¹ *ibid.*

¹⁷² *ibid.*

¹⁷³ FSE article "Unfolding environmental Disaster" Bernadette Maguire 2019, <https://www.fse.org.za/index.php/component/k2/item/673-unfolding-environmental-disaster-health-e-newsaccesssed> 2019.10.10.

The Mpumalanga Highveld, just as being the focal point of huge scale coal mining, is likewise home to South Africa's generally beneficial agrarian land and a key water catchment. Platinum mining in Limpopo and the North West harmonizes with rustic public land and has seen concentrated intra-community struggles.

Province	Main commodities	Mining contribution to provincial GDP 2016 (%)	Mining GDP 2010 (R billion – nominal terms 2016)	Number of operating large-scale mines in 2016 (Total = 1741)
Northern Cape	Diamonds, iron ore, manganese	31.1	52.34	302
North West	PGMs, gold, diamonds	28.4	17.27	341
Limpopo	Coal, PGMs, iron ore	27.9	55.51	142
Mpumalanga	Coal and PGMs	24.8	49.93	219
Free State	Gold, diamonds	12.6	18.06	77
Gauteng	Gold	2.3	22.34	167
KwaZulu-Natal	Coal, construction materials	1.9	8.30	133
Eastern Cape	Construction materials	0.3	0.60	171
Western Cape	Construction materials, marine diamonds	0.2	0.95	189

FIGURE 1: MINING IN SOUTH AFRICA PER PROVINCE SOURCE: MINERAL COUNCIL OF SA 2018 DMR D1 2016 DATABASE.

Mpumalanga province where most coal mining occurs is said to hold about R17 billion Rands.¹⁷⁴

Analysis of data and documents produced by the DMR through PAIA measures, reveal that the DMR held about R57 billion in 2015 in financial provision.¹⁷⁵ This research will look at the available data relating to a particular commodity and the geographic area as well as the respective financial provisions being held, in order to assess the extent of the available funds relative to the environmental impact observed...

According to the research by Oxpeckers, large Companies especially in the coal and gold space often sell their operations to smaller companies instead of bearing the closure costs.¹⁷⁶ the study will discuss briefly a few commodities relative to a particular region is where they are found.

Most money sits in the Coal industry sector. The mining houses across Mpumalanga represent R17.5 billion in monetary arrangements, covering not exactly the 6000 referenced earlier. The DMR office in Mpumalanga represents 30 % of the nation's total financial provisions set aside for rehabilitation.

Anker Coal Mine Case Study -

The Golfview mine avoided environmental liability by going business rescue. The Mpumalanga register showed that Golfview holds 10 provisions for mining rights in the area yet none of them had a penny. Most appear as legitimate however no clarification concerning how the value were reduced down to

¹⁷⁴ Watson and M. Olalde, "The state of mine closure in South Africa - what the numbers" July 2019, vol 119, *Journal of the Southern African Institute of Mining and Metallurgy*.
<https://www.saimm.co.za/Journal/v119n07p639.pdf>, accessed 2019.8.12

¹⁷⁵ *Ibid.*

¹⁷⁶ *Ibid.*

zero. The business rescue plan 2015 demonstrates a complete liability of R622 million and 29 million in natural harm and only R5 million left in the Trust Fund.¹⁷⁷

Platinum is spread in large parts in north west and Limpopo as a result of the platinum belt. The North west is the 2nd most heavily provisioned province with about R11.9 billion Rands. These are held by huge mines like Lonmin Marikana operations, which holds in the ballpark of around R425 million.¹⁷⁸

The Gold mining operations have endured many decades and was largely the commodity that contributed to the robust development of the mining sector in South Africa. Only 33 applications for closure certificates were received by the department between the period of 2012 and July 2018.¹⁷⁹ Only 15 certificates were granted. However, nothing was issued for Mining rights.¹⁸⁰ In gold producing operations, 15.5 billion is set aside as financial provision and this amount is shared between two provinces *i.e.* Gauteng and Free state. However, 221 closure certificates have been issued for the same aforementioned period but only one went to Mining Right which is largest polluter. The rest went to Road works.

5.3. Closure certificate

A key marker of the success of the mine closure process is the quantity of closure certificates issued (the quantity of mines surrendered).¹⁸¹ The issuing of the closure certificate infers that a mining organization has sufficiently restored the mine site in accordance with a closure plan and to the general standards set by regulator (refer to Table IV). Ideally, this is the result of a mine closure process.¹⁸² The inherited mine legacy of the estimated 5930 abandoned mines, as per the statistics gathered by the DMR and the Auditor General, indicate that no closure certificate was issued as of 2011 under Minerals Act or the MPRDA.¹⁸³

Pursuant to the application for access to the DMR records relating to mine closure by the Star Newspaper assisted by (FES) Foundation for environmental sustainability, a Court order allowing access through PAIA, was a triumph for environmental lobby groups. The analyses of the PAIA investigation and documents further revealed that there are 803 Closure Certificates that have been

¹⁷⁷ an investigative report by Oxpeckers titled "R60 billion held for mines that never closed" <https://oxpeckers.org/2017/05/r60-billion-held-mines-never-closed/> accessed 2019.08.19.

¹⁷⁸ Ibid fn 109.

¹⁷⁹ Star newspaper report "Leaving the Poor to Cope Alone: South Africa's Failed System of Mine Closure" published 06.12.2016"

<https://pulitzercenter.org/reporting/leaving-poor-cope-alone-south-africas-failed-system-mine-closure> accessed 2019.8.19.

¹⁸⁰ Ibid.

¹⁸¹ I. Watson and M. Olalde, Article by SAIMM "The state of mine closure in South Africa - what the numbers" July 2019, vol 119, *Journal of the Southern African Institute of Mining and Metallurgy* <https://www.saimm.co.za/Journal/v119n07p639.pdf> accessed 2019.8.30.

¹⁸² sec 43 of the MPRDA.

¹⁸³ Department of Mineral and Resources, Annual report for the period of 2011 and 2012.

https://www.gov.za/sites/default/files/gcis_document/201409/departamentofmineralresourcesannualreport20112012.pdf accessed 2019.8.05.

issued between the period 2011 and 2016.¹⁸⁴ Only 27 Closure certificates were allocated to the Mining Rights not involving Road works, 363 went to mining permits and 288 went to Prospecting Rights.

The area of mining operations most damaging to the environment involve Mineral Rights (MR) licence.s. Upon further scrutiny of the results, the said 27 closure certificates relating to the MR operations actually comprise 20 mining operations involving Sand and these are largely located in the Western Cape. This province does not have large scale polluting mining operations like coal, gold and platinum mines. Further, analysis of the western cape certificates relating to MR operation were for old order rights.

Further, Mark Olade of Oxpeckers', the investigating journalist, points out that the research shows that a huge number of closure certificates has largely been awarded to the prospecting rights instead of mining permits or mining rights.¹⁸⁵

Table IV
Closure certificates issued for prospecting rights, mining permits, mining rights, and unlisted sites, per region (2011–2016)

Region	Large-scale mines		Small-scale mines – mining permits	Prospecting rights	Unlisted sites	Total per region	% per region
	Mining rights (excl. road works)	Mining rights for road works					
Northern Cape	3	0	87	42	11	143	18%
North West	3	6	59	39	24	131	16%
Limpopo	0	0	65	77	3	145	18%
Mpumalanga	0	0	6	4	0	10	1%
Free State	1	45	63	99	13	221	28%
Gauteng	0	0	10	5	0	15	2%
KwaZulu-Natal	0	0	33	21	5	59	7%
Eastern Cape	0	0	29	0	12	41	5%
Western Cape	20	6	11	1	0	38	5%
Total per type	27	57	363	288	68	803	100%
% per type	3%	7%	45%	36%	9%	100%	-

Figure 2: Table illustrating closure certificates issued by DMR 2011-2016 per region. Source: MINERAL COUNCIL OF SA 2018 DMR D1 2016 DATABASE.

Therefore, according to the table IV, closure certificates issued went to the prospecting rights, mining permits and road works or construction (SANRAL) and the latter representing 57 Mining Rights related certificates.¹⁸⁶

Research shows that zero large mines in Gauteng of Coal, gold and platinum rarely achieve full and legal closure at least between 2011 and 2016. Moreover, between the period of 2012 and July 2018, only 33 applications for closure certificates were received by the department.¹⁸⁷ Only 15 certificates

¹⁸⁴ Ibid.

¹⁸⁵ investigative report by Oxpeckers titled “R60 billion held for mines that never closed” <https://oxpeckers.org/2017/05/r60-billion-held-mines-never-closed/> accessed 2019.08.19.

¹⁸⁶ Ibid.

¹⁸⁷ Ibid fn125.

were granted. However, nothing was issued for Mining rights.¹⁸⁸ however, nothing was granted for mining rights.

Table V
Applications for closure certificates made and certificates granted between 2012 and 2015, for regions where complete information was provided

Region	For all types of rights and permits (2012-2015)			For mining right only (incl. for road works)	
	Applications for closure	Closure granted for applications made	Success rate	Applications for closure	Closure granted for applications made
Northern Cape (Springbok office only)	97	53	56%	2	2
North West	334	81	24%	9	2
Limpopo	227	59	26%	0	0
Gauteng	33	16	48%	3	0
KwaZulu Natal	52	15	29%	0	0

FIGURE 3: TABLE ILLUSTRATING APPLICATIONS FOR CLOSURE CERTIFICATES ISSUED BY DMR 2012-2015. SOURCE MINERAL COUNCIL OF SA 2018 DMR D1 2016 DATABASE.

In coal, only about slightly more than 1% of the closure certificates were issued by the DMR office in Mpumalanga.¹⁸⁹

In the Free state, however, data show 221 closure certificates have been issued for the same aforementioned period in the free state but only one went to Mining Right. The rest went to Road works. There is a discrepancy between the financial provisions held for the majority of mining companies and the contributions made. The contributions made by 5% of mining companies accounts for the 95% of the total provisions held in the free state amount to R5.4 billion Rands.¹⁹⁰

The Eastern Cape only holds about R83.1-million in financial provisions, a fraction of what is held in the other provinces. This amount comprises of 277 bank guarantees, meaning operations with that type of financial provision average only about R180 000 per mine.

In Mpumalanga Province, financial provisions associated with prospecting rights was estimated to be R167 million. The financial provisions held by all the province's mines totalled 17.5 billion.

In terms of mine closure certificates granted, the majority of certificates granted for both provinces were only for PRs and MPs with only one MR certificate.

The "care and maintenance" practice which is also referred to as a "gateway to abandonment" of a mine contributes to the number of mines that close without a closure certificate.¹⁹¹ This practice has been labelled as a warehouse of unprofitable mining operations. This practice is seen as an alternative

¹⁸⁸ Ibid.

¹⁸⁹ Ibid.

¹⁹⁰ Olade M, "Coal mines leaves a legacy of ruin" <https://oxpeckers.org/2017/04/coal-mines-legacy/> accessed 2019.2.28.

¹⁹¹ Professor Catherine Horsfield of Center for environmental studies, in the article relating to previous investigation relating to "care and maintenance" see oxpeckers article Richterfield mine leaves community with dirt. <https://oxpeckers.org/2019/03/richtersveld-diamond-deal/> accessed 2019.2.121

to properly close a mine.¹⁹² Mining companies when facing financial difficulty relating to inter alia, operational reasons, are allowed to defer costs relating to environment liability to a future indefinite date or a period not surpassing 5 years. This results in a number of mines being left abandoned.

Some examples of “care and maintenance” cases witnessed in the Northern Cape are highlighted below.¹⁹³

The **Richterfield case study** of mines that were subjected to care and maintenance approach, A diamond mining company Trans Hex, sold its Lower Orange region operations to a junior mining company coined as black woman owned. It was sold for R72 million and the mines being referred to are **Reuning mine** was proclaimed as a loss maker and producer in 2014 and was put under care and maintenance in 2015.¹⁹⁴ **Baken mine** caused lost R137.5m in the half-year to end-September 2017 and was subjected into a similar consideration in October 2017.¹⁹⁵ **Bloeddrif** mine was also put under consideration and upkeep by Trans Hex in May 2017 after lost R60.1m in a similar period.¹⁹⁶

Initially, the rehabilitation cost to be inherited by the purchasing mining company were estimated by the DMR to be R133 000. The total environmental liabilities were confirmed to be 193 000. However, the spokesperson for (DMR) Ayanda Shezi confirmed that the amounts held in trust for rehabilitation amounted to R97 000 and this is a drop in the ocean.¹⁹⁷ A clear shortfall of about R60 000 exists and which had to be passed over to the purchaser. Moreover, the contractor tasked with rehabilitation estimation estimated the costs to be in the region of R800 000. He confirmed that the costs are calculated per hectare and the charge thereof is R200 000. The mining lease for the affected area in Bloeddrif was 40 000 hectares.

5.4. Conclusion

The financial provisions require calculations that are meticulous, based on fact and realistic assumptions. The entries used and the method of calculation are critical in determining the accurate conclusion is arrived at. So therefore, certain factors that cause distortion or unreliability of the financial provision by the mining houses are, *inter alia*, reliance on the outdated guideline document by the DMR, values used and calculation methodologies which create the potential for underestimation.

The law require that calculations must represent the actual costs of implementing the rehabilitations at the closure of the mine. This can be assessed through mathematical calculations but observation of the country’s landscape tells a different story. In some instances, amount of provision held by the companies is not in proportion to the negative impacts likely to be caused to the environment. Stats reveal that some companies contribute as little as R600 pm towards the financial provisions.

¹⁹² GN 1147 REGULATIONS PERTAINING TO THE FINANCIAL PROVISION FOR THE REHABILITATION, CLOSURE AND POST CLOSURE OF PROSPECTING, EXPLORATION, MINING OR PRODUCTION OPERATIONS financial provision 2015.

¹⁹³ Oxpeckers report “Environmental mess in Richtersfiled” Yolandi Groenewald <https://africawild-forum.com/viewtopic.php?t=9399> accessed 2019.5.12.

¹⁹⁴ *Ibid.*

¹⁹⁵ *ibid.*

¹⁹⁶ *Ibid.*

¹⁹⁷ *Ibid.*

Underestimation or shortfall in the calculation of the provision can have dire consequences for the environment and this could exponentially raise the costs of remediation to unreasonable levels. Examples of situations where failure of securing financial provisions are discussed in this study. Insufficient or lack of accurate provisions leads to inability meet environmental liabilities and to issue closure certificate.

Ideally, the closure certificates issued should reflect the number of mines that has ceased operations. The true situation in South Africa shows that we are far from achieving same and this is confirmed by the huge numbers of abandoned mines inherited that still need rehabilitation and proper closure. The figures are confirmed by data by Geo Science council.

The failure by the state to release or spend financial provisions set aside or contributions made by mining houses to deal with environmental liabilities of mine undermines the function for which the instruments were created or the underlying reason for the financial provision. This compounds the problem.

Although somewhat encouraging, the survey discussed above does not indicate a victory in the war to restore the environment in order to be reused. Whilst there are examples of closures that were handled successfully, the concentration thereof is in the mines whose operations involve little environmental impact such as those in road construction, mine permits, prospecting. This excludes large mines in Mineral Rights licences whose operations involve large pollutions.

Apart from operations outside the MR licence space, other pockets of successes are found in the Asbestos operations. The success can be attributed to the fact that the state took a lead and initiative by identifying the asbestos mining operations as a priority area for rehabilitation and mine operations thereof requiring proper closure. By allocating the funds to address concerns raised helped to ensure the environmental liabilities are met.

The reporting of financial provision is contained in a one-line sentence found in the mines balance sheet/financial statement which provides little information relating to how much is available to address environmental liabilities. The proposed alternative is that the reporting should be done per operation. The state has left the reporting to the mining companies and there are monitoring measures to verify compliance in respect of the quality and quantity of the financial provisions.

The CGS figure of abandoned mines alluded to earlier imply that there are simply too many abandoned mines left to rehabilitate. Therefore, this means that more burden must be absorbed by the state. It's clear also that no further contributions towards financial provision are received owing to the fact that the owners or directors cannot be found and that production has ceased. The facts indicate that there are no funds to address old mines and the government does not have a plan in place.

CHAPTER 6 - CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

SA laws require a closure certificate as a final stamp indicating that a mine has been properly closed. In addition, the said laws are aimed at advancing the protection of the environment and encourage sustainable development through responsible mining.

The laws require mining companies, before they start mining, to have environmental impact studies and plans setting out the harm that the mining will cause, and how they will rehabilitate the affected land. Owners of the mines are required to set aside costs of recovery, and are required to put aside provision to attend to the costs of rehabilitation and closure upon termination of the mining operations.

The total applications for mine closure and the low levels of success indicate there is a struggle or challenge against successful rehabilitation of medium to large mines. The causes thereof can be attributed to underfunded financial provision which results in the mine houses not to properly close the mining operations.

Mining companies find it easier to put mines in care and maintenance or sell to avoid closure instead of dealing with the environmental obligations. This further affirms the perception that rehabilitation and mine closure programmes are not successfully completed because of the extended time required to do this.

The absence of proper mine closure can be attributed also to the government's role, transparency, incomplete data and low levels of the total certificates issued for all types of rights permissions. Some of the explanations advanced for this include lack of capacity to monitor and audit the closure process by the regulator as well as indecision by the officials within DMR.

The state has put its concentration on mines that have financial provision or that have recently applied for closure certificate. Historic large number of mines remain without provision and continue to be ignored. There is no commitment by the state nor plans to tackle these mines. The state has abdicated its responsibility to pursue alternative ways of effecting rehabilitation and closure through measures contemplated by provisions of section 45 and 46 of the MPRDA respectively. Instead it constantly relies on availability of financial provisions even where it is clear that no such funds exist. It is interesting to see what the picture would look like if the state could utilise the appropriation approach of selling mine owned assets and use the proceeds thereof to address the issue of abandoned mines.

In conclusion, the financial security measures relating to the provision for rehabilitation and mine closure must be specific, measurable, accurate, reliable and transparent. If all these elements are addressed.

6.2. Recommendations

The “polluter must pay principle”, though ideal in its intentions, has proven not be effective in addressing the footprints of ownerless or abandoned mines. A dual approach where the state as the custodian of all mines takes charge and implement creative measures to address derelict mines. In reality, even if we rehabilitate 10 mines a year from the total abandoned mines, that would still be not enough to make an impact on the environmental burdens we inherited.it would take years to turn the situation around. If things are currently left as they are, the situation will further deteriorate and even be costlier to address.

The departments of water and sanitation, environmental affairs as well as the DMR must jointly keep an accessible register showing the amount put aside for environmental liabilities and it must be updated regularly in line with review procedures required for financial provisions. Further, it must contain details relating to the holder of a Right, vehicle used to keep the provision, the details of the total value that is administered by the DME, investment of those funds and the persons who access thereto. Improve and introduce financial reporting that promotes transparency and accountability in so far as disclosure of provision for costs of rehabilitation is concerned.

The lack of appetite by the National Director of public prosecutions to initiate prosecutions against offenders creates an environment that is conducive for unscrupulous behaviour by mine companies. In order to complement the efforts made by environmental laws, the state must introduce harsher penalties against non-compliance and violating actions within the industry. This can deter other wrongdoers.

In other mine closure systems from other jurisdictions, such as that of the US coal industry, mining companies put up similar financial provisions and earn back portions of their money in phases when they hit rehabilitation benchmarks. This both incentivises speedy closure as well as returns funds to companies that often operate on thin margins.

The 2005 DMR Guide for evaluation of financial Provision provided by a mine is outdated and should be scrapped. Accurate methods of calculation closely linked to actual costs must be introduced considering the role of inflation and currency fluctuations and different exchanges.

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