

Alignment of various environmental authorisation processes for the mining industry

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INDEX

List of abbreviations	2
Abstract	4
Uittreksel	5
1. Introduction	6
2. Background	9
2.1 What is mining?	9
2.2 Mining life cycle	15
2.3 Mining related legislative development	19
3. Mining authorisation process	31
3.1. Reconnaissance	33
3.2. Prospecting	33
3.3. Feasibility study and planning	35
3.4. Construction and commencement	46
3.5. Mining operation	47
3.6. Expansions	47
3.7. Closure	48
4. Challenges and way forward	49
4.1 Challenges	49
4.2 Proposed application process	53
5. Conclusion and recommendations	59
Bibliography	62

List of abbreviations

BA	Basic assessment
BAT	Best available technology
BATNEEC	Best available technology not exceeding excessive cost
CONNEPP	Consultative National Environmental Policy Process
DEA	Department of Environmental Affairs
DME	Department of Minerals and Energy
DMR	Department of Mineral Resources
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
EAP	Environmental assessment practitioner
ECA	<i>Environmental Conservation Act 73 of 1989</i>
EIA	Environmental Impact Assessment
EIPs	Environmental Implementation Plans
EMP	Environmental Management Plan
EMPR	Environmental Management Programme Report
GG	<i>Government Gazette</i>
GN	<i>Government Notice</i>
I&AP's	Interested and affected parties
IWULA	Integrated Water Use License Application
LUPO	<i>Land Use Planning Ordinance 15 of 1985</i>
MPRDA	<i>Mineral and Petroleum Resources Development Act 28 of 2002</i>

MPRDAA	<i>Mineral and Petroleum Resources Development Amendment Act 49 of 2008</i>
MPRDR	Mineral and Petroleum Resources Development Regulations GN R527 of 23 April 2004
NEMA	<i>National Environmental Management Act 107 of 1998</i>
NEMAA	<i>National Environmental Management Amendment Act 62 of 2008</i>
NEM:AQA	<i>National Environmental Management: Air Quality Act 39 of 2004</i>
NEMBA	<i>National Environmental Management: Biodiversity Act 10 of 2004</i>
NEMWA	<i>National Environmental Management: Waste Act 59 of 2008</i>
NFA	<i>National Forest Act 84 of 1998</i>
NHRA	<i>National Heritage Resources Act 25 of 1999</i>
NWA	<i>National Water Act 36 of 1998</i>
ROD	Record of Decision
SAHRA	South African Heritage Resources Agency
SEMA	Specific Environmental Management Act
SCA	Supreme Court of Appeal
S&EIR	Scoping and Environmental Impact Report

Abstract

Mining contributes significantly to the economic development of South Africa, contributes to pollution and other negative environmental impacts. Section 24 of the *Constitution of the Republic of South Africa, 1996 (Constitution)* places a duty on government to, amongst others adopt legislative measures to protect the environment, prevent pollution and degradation, and secure sustainable development, while promoting justifiable economic and social development. Government responded with the introduction of new acts or the amendment of existing acts most of which require an authorisation process as a “command and control” tool to enforce environmental governance within the mining sector. The abovementioned legislative development will be discussed from a historical perspective up to the current developments. The research aims to attempt to align the authorisation process pertaining to mining. The mining life cycle will be illustrated and the authorisation requirements for each of the mining life cycle processes will be discussed alongside its challenges such as fragmentation, lack of capacity in government sectors, lack of communication and cooperative governance within government. The lack of focus within the authorisation requirements will be deliberated. To avoid the negative consequences of the current authorisation processes such as duplication, unnecessary time delays and the stifling of economic growth, an investigation into how the various fragmented authorisation processes can be aligned into a single streamlined authorisation process which will contribute to the sustainable development within South Africa will be made.

Key Words

Mining, environmental impacts, economic growth, environmental governance, authorisations, mining life cycle, fragmentation, cooperative governance, capacity, aligned authorisation process.

Uittreksel

Mynbou dra betekenisvol by tot die ekonomiese ontwikkeling van Suid-Afrika, maar dit het ook bygedra tot besoedeling en ander negatiewe omgewingsimpakte. Artikel 24 van die Grondwet van die Republiek van Suid-Afrika, 1996 (die Grondwet) plaas 'n plig op die regering om onder andere wetgewende maatreëls in plek te stel om die omgewing te beskerm, besoedeling en agteruitgang te voorkom, terwyl dit regverdigbare ekonomiese en sosiale ontwikkeling bevorder. Regering het gereageer met die bekendstelling van nuwe wette of die wysiging van bestaande wette, waarvan die meeste 'n magtiging proses as "bevel en beheer" meganisme vereis om omgewingsbestuur binne die mynbousektor af te dwing. Die wetgewende ontwikkeling vanuit 'n historiese perspektief sal bespreek word met die huidige ontwikkelinge en pogings om die magtiging prosesse wat betrekking het tot mynbou in ooreenstemming te bring. Die lewensiklus van die mynbou word geïllustreer en die vereistes vir die verkry van 'n matiging vir elk van die mynbou-lewensiklus prosesse sal bespreek word met sy uitdagings soos fragmentering, 'n gebrek aan kapasiteit, kommunikasie en samewerking binne die regering sektor en die tekortkominge binne die magtiging vereistes. Die gevolge van die huidige magtigings soos duplisering, onnodige tyd verbruing en die voorkoming van ekonomiese groei sal ondersoek word om vas te stel hoe die verskillende gefragmenteerde magtiging prosesse in lyn gebring kan word in 'n enkele magtigings proses wat sal bydra tot die volhoubare ontwikkeling in Suid-Afrika.

Sleutelwoorde

Mynbou, omgewings invloed, ekonomiese groei, omgewings-bestuur, magtigings, mynbou-lewensiklus, fragmentasie, samewerkende regering, kapasiteit, enkele magtiging proses.

1 Introduction

Since the dawn of humankind mining has been an essential part of human development, starting with the mining of clay and stone for the construction of the first houses to the present where just about every element on the chemical periodic table is mined to sustain the need of humans.¹ South Africa is renowned for its mineral wealth; it owns and produces a significant proportion of the world's minerals. About 90% of the world's platinum metals, 80% of manganese, 73% of chrome, 45% of vanadium and 41% of gold are present in South Africa. Other minerals such as iron ore, copper, nickel, diamonds and coal are also mined in South Africa. South Africa's wealth has been built on the mining of its vast resources. However, mining's contribution to the overall GDP of South Africa has declined from 21% in 1970 to less than 6% in 2011, but it still accounts for 65% of the country's export earnings. The mining industry is still the biggest employer with 510000 direct employees and another 400000 employed by suppliers of goods and services.²

In the same way that South Africa has an abundance of mineral wealth it is also one of the most biologically diverse countries in the world with approximately 24000 vascular plant species found inside its borders, of which more than 10000 are endemic and more than 2000 are threatened.³ This constitutes a major challenge to South Africa in that unlike any other industry, a mining operation has no choice in its location as its location is determined by where the mineral is found. The sustainable development challenge facing the South African mining industry is extremely complex in that future generations are inheriting mining legacies such as long term

1 Wells *et al* "Terrestrial Minerals" 519.

2 Gore and Tucker 2011 <http://www.gettingthedealthrough.com>.

3 Algotsson "Biological Diversity" 97.

pollution or degradation of biological resources.⁴ To ensure that the mining industry operates in a sustainable manner as far as possible by minimising its impact on the environment, legislation needed to be developed and implemented. Section 24 of the *Constitution* places a duty on government to, amongst other things, adopt legislative measures to protect the environment, prevent pollution and degradation, and secure sustainable development, while promoting justifiable economic and social development. As a result, a whole range of new acts have been introduced and again amended since 1996. These acts include *inter alia* the *Mineral Petroleum Resources Development Act 28 of 2002* (MPRDA); *National Environmental Management Act 107 of 1998* (NEMA), *National Water Act 36 of 1998* (NWA); *National Environmental Management: Air Quality Act 39 of 2004* (NEM:AQA), *National Environmental Management: Waste Act 59 of 2008* (NEMWA), *National Environmental Management: Biodiversity Act 10 of 2004* and the *National Heritage Resources Act 25 of 1999* (NHRA). All of these acts require some form of an authorisation process to which the industry has to adhere. These authorisation processes are administered by various government departments at national, provincial and local government levels.⁵ The new acts and regular amendments to the various acts have resulted in severe confusion within the mining industry and the government sector as to who has to administer these authorisation processes.⁶

Chapter 3 of the *Constitution* demands cooperative governance while NEMA also provides in chapter 5 for the possibility for some alignment of environmental authorisation processes. In practice, cooperative governance is not always visible when industry approaches government departments for environmental authorisations.⁷

4 O'Brien 2011 <http://sesolutions.co.za>.

5 The authorisation processes will be discussed in chapter 3.

6 *City of Cape Town v Maccsand* 2011 1 SA 506 (WCHC).

7 Own experience working at Nkomati mine as an environmental superintendent from 2005-2010.

While there are complaints that mining companies cause damage to the environment,⁸ their contribution to the development of the country is also acknowledged.⁹ Mining companies complain about the drawn out and sometimes complex environmental processes that they are involved in, which do not take duplication into account. This was highlighted by Thabo Mbeki who stated at the Cabinet's *Iekgotla* in August 2006 that environmental authorisations contributed to development delays and a considerable slowing down in economic activity.¹⁰ If the process of obtaining numerous environmental authorisations is necessary to ensure that government obliges with section 24(b) of the *Constitution*, it seems that a middle road needs to be found to ensure that the environment is protected while at the same time allowing justifiable and sustainable development to take place. It is therefore necessary to establish how the different environmental authorisation processes could be aligned to ensure a speedier application and an aligned environmental authorisation process in South Africa.

The aim of this dissertation is, therefore, to determine if and how the environmental authorisation processes of the MPRDA, NEMA, NWA, NEM:AQA, NEMWA and the NHRA could be aligned to avoid duplication and to make recommendations as to how to streamline the process. This study is based mainly on a literature survey of legislation, regulations, policy documents, journal articles, books and other literature dealing with the topic as well as the researcher's own experience.¹¹ For background

8 Weavind *Sunday Times* 10 June 2012 11.

9 Anon 2012 <http://www.treasury.gov.za>.

10 Macleod 2006 <http://www.environment.co.za>.

11 Some of the research is based on my own experiences working as an official in the former Department Water Affairs and Forestry (DWAFF) from 1991 to 2002 working on mining related pollution investigations, closure and rehabilitation and mining authorisations and then working as an environmental specialist/superintendent in the mining private sector at Assmang Manganese and NKomati Mine from 2002 to 2012 dealing specifically with the various mining related authorisations.

information the different mining processes, mining life cycle and mining related legislative historical development will be referred to.¹² Thereafter, the mining related authorisation processes for each of the different phases¹³ will be discussed alongside the challenges associated with the various authorisation processes¹⁴ in order to be able to make recommendations¹⁵ and reach a conclusion.¹⁶

2 Background

In this chapter mining will be defined and the various mining methodologies and the phases of the mining life cycle will be discussed in brief. The development of mining related legislation from its earliest development to the current fragmented legislation that impact on the mining related authorisations will be discussed.

2.1 What is mining?

The *Minerals Act* 50 of 1991 defined mining as the:

making of any excavation or borehole or the exploitation of any mineral deposit in any other manner, for the purpose of winning a mineral, including any prospecting in connection with the winning of such a mineral.

The MPRDA defines mining now as:

any operation or activity for the purposes of winning any mineral on, in or under the earth, water or any other residue deposit, whether by underground or open working or otherwise and includes any operation or activity accidental thereto.

12 See chapter 2.

13 See chapter 3.

14 See chapter 4.

15 See chapter 4.

16 See chapter 5.

Mining is a process where minerals are extracted from an ore body and, depending on where the ore body is situated, will determine the mining method to be used. Mining methods can be divided into two principal techniques namely surface mining and underground mining.

2.1.1 Surface mining

Surface mining methods are used when the ore reserves are relatively close to the surface, ranging from relatively horizontal stratified layers with little overburden, up to shallow layer which is dipping steeply with huge amounts of overburden and waste rock to be removed. The mining methods range from strip mining, open pit mining, dredge mining and dump reclamation which is the mining of historical mining waste dumps.¹⁷

2.1.1.1 *Strip mining*

Strip mining, also called opencast, mining occurs when the mineral deposit is situated in a horizontal seam very close to the surface and a wide area is available to be mined in a series of strips. The most common example is the larger tonnage coal mines in Mpumalanga.¹⁸ The method involves the removal and stockpiling of the topsoil and overburden in long strips with machinery such as draglines. The exposed ore seams are then drilled and blasted and removed in the same way as the overburden. Once ore body is removed the overburden is replaced and covered with the topsoil. Concurrent rehabilitation is done in the already mined out strip at the

¹⁷ Bullivant "Current Surface Mining Techniques" 827-833.

¹⁸ Bullivant "Current Surface Mining Techniques" 827-833.

same time as the next strip is mined, leaving exposed rock open for the shortest time as possible as to minimise the possible occurrence of acid mine drainage. The biggest environmental impact of strip mining is the loss of biodiversity especially where wetlands occur. Most strip mining, however, occurs on land that was previously used for agricultural purposes. Other impacts can be loss of aquifers (groundwater resources) due to dewatering for the purpose of mining, the pumping of rain water from inside the pit, which is usually contaminated, into a receiving water resource. Most of the time strip mines are rehabilitated in such manner that the area can be used for future agricultural purposes.¹⁹

2.1.1.2 Open-pit mining

This method is used when the ore body starts close to the surface and then dips in a steep angle, such as is the case with the manganese mines in the Northern Cape, or the ore body is inside a pipe formation such as the famous kimberlite pipe formation which is famous for its diamonds.²⁰ The method involves the removal of the whole ore body with drilling and blasting with very little to no overburden to be stockpiled. With this method a very deep pit is created such as the Big Hole in Kimberley. The ore is usually transported with trucks from the pit to the processing plant. At the processing plant the minerals are separated by various means which usually involve the crushing of the ore followed by the physical separation of the minerals. These processes usually result in the generation of various waste streams such as waste rock, tailings or slag depending on the type of extraction metallurgical process used. This can consist of either a hydrometallurgy process which is the of removal of minerals with an aqueous solutions, and generates tailings as a waste, or a pyro-metallurgy process that is the smelting of the ore in a smelter to produce a molten metal product with slag as a waste, and lastly, an electrometallurgy process which is

¹⁹ Wells *et al* "Terrestrial Minerals" 519.

²⁰ Bullivant "Current Surface Mining Techniques" 827-833.

the separation of metals through electrolytic conductors.²¹ The waste rock is normally stockpiled close to the pit area as it is used at the end of the life of the mine to refill the pit as part of the rehabilitation process. Tailings are stored inside specially constructed tailing dams and slag is always stockpiled next to a smelter. The impact of this mining method is always a change in permanent land use as a pit will never be able to be rehabilitated back to its original state. The open pits usually fill with water over time due to rainfall and the natural ingress of groundwater. Depending on the type of ore body, the impacts on water quality varies from none in the case of diamond mining to severe in the case of sulphate containing minerals which causes acid mine drainage.²²

2.1.1.3 Dredge mining

Dredge mining is used when heavy minerals are found in alluvial deposits within sand dunes. This method consists of developing a pond within the sand dune and then using a floating dredge to pump the minerals to a separation plant which are also usually floating in the pond. The heavy minerals are separated and concentrated and pumped ashore for collection and further processing.²³ The waste material which is mainly sand particles is pumped back into the mined out areas of the pond. The most well-known dredge mining operations are the coastal sand dune mining operations on the northern coastal regions of KwaZulu-Natal. The biggest impact from these mining operations is the loss of biodiversity as these sand dunes are situated within the coastal sand dune forest and requires the clearing of these forest before a pond can be developed.²⁴

21 Gilchrist *Extraction Metallurgy* 3.

22 Sader *Acid mine drainage* 1.

23 Wells *et al* "Terrestrial Minerals" 522.

24 Harskamp *Alluvial mining operation* 27.

2.1.1.4 Dump reclamation

Dump reclamation involves the reprocessing of old historical waste rock dumps and tailings dams of which still contain enough minerals to make it financially viable. This process normally has a positive environmental impact as the historical dumps are usually poorly constructed with minimum environmental controls. The process now involves the reworking of these dumps and reconstruction of new dumps with improved environmental controls. However, the mining of historical dumps does not require a mining right in terms of the MPRDA, as long as the ownership can be proven.²⁵

2.1.2 Underground mining

Underground mining is done when the minerals are too deep to be mined by surface mining techniques and underground mining techniques such as shallow or deep underground mining are required to extract the minerals.²⁶

2.1.2.1 Shallow underground mining

Shallow underground mining is done when the minerals are found in narrow seams that are too deep to be mined as an open pit mine, but can be reached via a short vertical shaft or a decline shaft or a horizontal adit. The mining methodology is usually the bord-and-pillar method which is normally conducted in coal mining operations. The ore body is drilled and blasted and then brought to surface.²⁷ The old

²⁵ *De Beers Consolidated Mines Ltd v Atuqua Mining (Pty) Ltd and Others* 2007 ZAFSHC 74.

²⁶ Wells *et al* "Terrestrial Minerals" 524.

²⁷ Hamrin <http://www.ct.ufrgs.br>

workings which are already mined out are normally backfilled with waste rock.²⁸ Historically, the pillars were also mined near the end of the mining operation as they retreated from the old workings; this caused the underground roof to collapse and surface subsidence with associated cracks to be formed. These cracks caused numerous environmental problems such as the ingress of air that results in underground fires, ingress of surface water and a physical safety risk to humans, livestock and wildlife that can fall into these cracks.²⁹ Present day shallow underground mines do not mine the pillars as to prevent these roof collapses occurring. These mines have large a negative impact on water resources both surface and underground water.³⁰

2.1.2.2 Deep underground mining

South Africa is renowned for its deep underground mining and for having the deepest underground mine in the world at the Mponeng mine of AngloGold Ashanti, where depth of 3860 meters was reached in April 2009.³¹ Deep underground mines consist of vertical shafts to the depth level where the ore seams occur and then horizontal tunnels following the various seams. The ore is hoisted to the surface through the shafts and conveyed to the various types of processing plants. This type of mining has very little impact on biodiversity on the surface except for the constructed tailing dams which are used to store the waste generated from the processing plants. The biggest impact of this mining arises from the dewatering operation to prevent the flooding of the underground sections. The dewatered water usually comes into contact with sulfate-rich minerals, which results in the water becoming acidic and thereby dissolves the salt and heavy metals. The underground water is normally

28 Wells *et al* "Terrestrial Minerals" 524.

29 Own experience as DWA official working on the Hlobhane colliery in KwaZulu-Natal.

30 Wells *et al* "Terrestrial Minerals" 524.

31 Bleby 2011 <http://www.bdlive.co.za>.

pumped to huge evaporation ponds. In heavy rainfall conditions it can occur that these evaporation dams overflow and cause pollution of river systems. The dewatering operation also contributes to subsidence of surface areas and the formation of sinkholes.³²

The biggest concern, however, occurs with the closure of these mines, when the underground dewatering operation ceases and the underground workings are allowed to be flooded. With time, the water rises to such a level where it starts to decant such as the West and Central Rand basins in Gauteng where the water resources have become highly acidic and farmers in the area who have used this water have suffered immense damages to crops and livestock.³³

2.2 Mining life cycle

All of the mining techniques mentioned in the previous paragraph (see 2.1) follow basically the same mining life cycle process³⁴ which can be divided in four distinct phases, namely reconnaissance, prospecting, mining operation and closure.³⁵

32 Wells *et al* "Terrestrial Minerals" 524.

33 Sader *Acid mine drainage* 1.

34 Nel and Kotze "Environmental Management" 15.

35 Life cycle is based on the different authorisations required within the MPRDA

2.2.1 Reconnaissance

Reconnaissance according to the MPRDA means:

any operation carried out for or in connection with the search for a mineral or petroleum by geological, geophysical and photogeological surveys and includes remote sensing techniques, but does not include any prospecting or exploration operation.³⁶

Reconnaissance is the procedure used to determine the possibility that minerals may occur and uses non-invasive techniques such as geophysical surveys and geological mapping directly on site and also remote sensing off site. Remote sensing techniques are the acquisition of information about an area without making physical contact with that area through the use of earth observation satellites, including (for example) the Landsat program or the IKONOS satellite. The generated maps of land cover and land use from thematic mapping can be used to prospect for minerals. All of these techniques have no environmental impact except for a small amount of bush clearing that takes place to make paths to conduct geophysical surveys.³⁷ Once all the information is gathered and the information indicates the possibility of mineral bearing geology, then prospecting will be conducted to confirm the existence of the minerals.

2.2.2 Prospecting

According to the MPRDA, prospecting means

intentionally searching for any mineral by means of any method –

³⁶ S 1.

³⁷ Own experience at Nkomati Mine 2005-2010.

- (a) Which disturbs the surface or subsurface of the earth, including any portion of the earth that is under the sea or under water; or
- (b) In or on any residue stockpile or residue deposit, in order to establish the existence of any mineral and to determine the extent and economic value thereof; or
- (c) In the sea or other water on land.³⁸

Prospecting involves the physical assessment of an area in search of minerals and consists of taking samples by either excavations or drilling for core samples. Environmental impacts arise when bulk samples are removed, either through excavations for shallow ore deposits or by sinking a vertical shaft to the depth of the ore body. Impacts consist of destruction of biodiversity due to clearing of vegetation and/or impacts on surface and ground water as result of excavations and the storage of waste rock and ore.³⁹ Bulk sampling has a potential to be abused, especially in the case of shallow coal deposits where the opportunity exists for a quick in-and-out method of mining without the need for a full application for a mining right.⁴⁰ Once the availability of minerals is confirmed and it is of such a nature that it is financially viable to be mined, a mining plan will be developed and implemented for a mining operation to commence.

2.2.3 Mining Operation

The definition of a mining area as per the MPRDA is as follows:

- (a) in relation to a mining right or a mining permit, means the area for which that right or permit is granted;
- (b) in relation to any environmental, health, social and labour matter and any latent or other impact thereto, includes –
 - (i) any adjacent or non-adjacent surface of land on which the extraction of any mineral and petroleum has not been authorized in terms of this Act but upon which related or incidental operations are being undertaken and, including –

38 S 1.

39 Own experience at Nkomati Mine 2005-2010.

40 See 3.3.3.

- (i) any area connected to such an area by means of any road, railway line, power line, pipe line or cable way is located; and
 - (ii) any surface of land on which such road, railway line, power line, pipe line or cable way; and
- (ii) all buildings, structures, machinery, mine dumps or objects situated on or in that area which are used for the purpose of mining on the land in question.⁴¹

This definition plays an important role in understanding the complexities surrounding the environmental authorisations process pertaining to a mining operation. The MPRDA authorisation⁴² incorporates all the activities within the mining area under one authorisation, whereas all the environmental authorisations as per the NEMA,⁴³ NWA,⁴⁴ NEMWA⁴⁵ and NHRA⁴⁶ authorises only an activity on its own. The main mining associated infrastructure is almost the same at all different types of mining activities and include amongst others the following:⁴⁷

- Road infrastructure with associated river crossings.
- Building infrastructure.
- Bulk fuel storage facilities.
- Mining shafts, pits or dredging ponds.
- Mining associated waste stockpiles which range from waste rock dumps, tailings dams with their return water dams and overburden stockpiles.
- Underground dewatering evaporation dams.
- Conveyor systems.
- Product stockpiles.

41 S 1.

42 See 3.3.1.

43 See 3.3.2.

44 See 3.3.3.

45 See 3.3.4.

46 See 3.3.5.

47 Own experience at Nkomati Mine 2005-2010.

- Various pipelines from tailings to dewatering to water supply pipelines.
- Domestic waste sites.
- Power supply infrastructure.
- Beneficiation plants.

The environmental impacts of the abovementioned mining activities can range from loss of biodiversity, loss of natural resources, contamination of ground and surface water and air pollution. Each mining operation has a limited lifespan which depends on the quantity of minerals available to be mined. Towards the end of mining operation the planning of closure and rehabilitation starts.

2.2.4 Decommissioning, Closure and rehabilitation

Decommissioning, closure and rehabilitation must be planned during the design and operation phase of a mining operation. This involves the following two phases; decommissioning (physical removal of all infrastructure) and the rehabilitation of all the waste facilities such as the waste rock dumps and tailings facilities. The funds for closure are generated during the operation phase⁴⁸ as required by the MPRDA.⁴⁹

48 Wells *et al* "Terrestrial Minerals" 541.

49 Regulation 53 of GN R527 in GG 26275 of 23 April 2004.

2.3 Mining related legislative development

2.3.1 Early development

After the discussion on the different types of mining operation and the mining life cycle process, it is necessary to discuss mining related legislative development in order to understand the fragmented nature of mining authorisation processes.

The first legislation that was promulgated regarding mining in the “Pre-Union” days was focused only on the exploitation of minerals and their only relevance to the environment was in the case where a landowner suffered damages due to mining operations.⁵⁰ The *Transvaal Law 2* of 1872, in relation to the issuing of prospecting licenses on private and state land, provided that no prospector would have the right in his prospecting operations to prejudice houses, lands, gardens, roads, kraals, dams, water furrows and plantations. However, in an addendum to Law 1 of 1883, diggers were indemnified for polluting and muddying river waters.⁵¹

The *Mines and Works Act 27* of 1956 came into operation in 1956 without any detailed provisions regarding environmental management except for the fencing of disturbed areas and the securing of openings as part of closure of a mine.⁵² However, in the same year the *Water Act 54* of 1956 was promulgated and sections 12b and 21 required mines to apply for a permit for the discharge of water found underground.⁵³ The first serious environmental concern in mining legislation was reflected only in 1977 when the *Mines and Works Act 27* of 1956 was amended to

50 Wells *et al* “Terrestrial Minerals” 546.

51 Wells *et al* “Terrestrial Minerals” 547.

52 Wells *et al* “Terrestrial Minerals” 547.

53 *Water Act 54* of 1956.

enable the then Minister of Mineral and Energy Affairs to make regulations in terms of the conservation of the environment at, or near, mines or works, which also included the restoration of land on which activities related to mines or works are performed or have been performed.⁵⁴ As stated by Kidd,⁵⁵ the *Water Act* 54 of 1956 provided a set of regulations⁵⁶ which controlled mining operations in terms of water pollution offences that arose from mining operations, such as the prevention of water pollution,⁵⁷ failure to prevent run-off,⁵⁸ failure to protect water ways,⁵⁹ the failure to take measures to prevent extraneous liquid from entering waterways,⁶⁰ the siting of dumps and slimes dams,⁶¹ and the failure to repair dumps and slimes dams.⁶²

On 1 January 1992, the *Minerals Act* 50 of 1991⁶³ was promulgated and as stated by the long title of the Act, the purpose of the Act was:

To regulate the prospecting for and optimal exploitation, processing and utilisation of minerals; to regulate the orderly utilisation and the rehabilitation of the surface of land during and after prospecting and mining operations: and to provide for matters connected therewith.

With the changing global focus from a 'clean-up' to a 'prevention and management of impacts', the Act took in account management practices,⁶⁴ by requiring all new and

54 Wells *et al* "Terrestrial Minerals" 547.

55 Kidd *Environmental Law* 153.

56 GN R287 in GG 4989 of 20 February 1976.

57 Regulation 6.1.

58 Regulation 7.

59 Regulation 9.

60 Regulation 10.

61 Regulation 16.1.

62 Regulation 21.2.

63 50 of 1991.

64 McCourt *Environmental legislation and water management issues during mine closure in South Africa* 744.

existing prospecting and mining operations to prepare and submit an environmental management programme report (EMPR) and to obtain authorisation for the operation. This form of requirement for an authorisation process can be seen as a technique by government using one of the main command and control instruments to prevent environmental harm.⁶⁵

This authorisation process with its EMPR was in total regulated by the then Department of Minerals and Energy (DME), which is now called the Department of Minerals Resources (DMR). Sometimes the advice or comments of the then Department of Water Affairs and Forestry (DWAF) (now the Department of Water Affairs (DWA)) was requested as DWAF was responsible for the rehabilitation of disused mine dumps of mines that were closed prior to 1956. During this period there was fragmentation of departments dealing with various aspects of environmental media (water, soil, air, biota, minerals etc.) which resulted in fragmented application of policies and legislation.⁶⁶ The approach of the departments regarding their practices, legislation and policies were focused on the facilitation of resource allocation and resource exploitation.⁶⁷

In 1994 with the establishment of a new democratic South Africa the legal system was brought into a new era with the enactment of a new *Constitution* and its Bill of Rights.⁶⁸ The *Constitution* acts as framework legislation within which South African environmental legislation must operate⁶⁹ and this is due to the environmental right that is contained within section 24 of the *Constitution*.

65 Wessels *Environmental authorisations and mining organisations* 19.

66 Du Plessis "Legal mechanisms for cooperative governance in South Africa" 5.

67 Nel, Kotze and Snyman *Strategies to integrate environmental policy at the operational level* 3.

68 Kidd *Environmental Law* 18.

69 Kidd *Environmental Law* 20; See also Du Plessis and Nel "An evaluation of NEMA" 1-37 for a discussion on framework legislation.

Everyone has a right –

- (a) To an environment that is not harmful to their health or well-being; and
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-
 - (i) prevent pollution and ecological degradation;
 - (ii) promote conservation; and
 - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

There are two distinctive parts to this right; paragraph (a) is a fundamental human right; and paragraph (b) which is a more in the nature of a directive principle⁷⁰ by placing a duty on government to develop legislative measures to protect the environment, prevent pollution, degradation and secure sustainable development. The drafters of *Constitution* did not make use of the opportunity to ensure the alignment of environmental procedures, but institutionalised the concept of fragmentation, which included vertical fragmentation across the spheres of government (national, provincial and local) and horizontal fragmentation within each sphere of government.⁷¹ However, to ensure that various departments did not start to govern in silos, the *Constitution* provided in chapter 3 that the execution of distinct governmental functions within each sphere of government must be based on the principle of co-operative governance.⁷² Co-operative governance is required for the effective environmental governance through environmental compliance and enforcement.⁷³ Section 41 of the *Constitution* contains the principles of co-operative governance and the requirements regarding intergovernmental relations.⁷⁴

70 Kidd *Environmental Law* 18; See also Du Plessis “South Africa’s environmental right” 279-307; Du Plessis “Perceptive approaches to the interpretation” 129-156.

71 Kotze, Nel and Snyman “Strategies to integrate environmental policy at the operational level” 3.

72 Chapter 3 of the *Constitution*.

73 Du Plessis “Understanding the legal context” 33; See also Du Plessis “Legal mechanisms for cooperative governance” 87-110.

74 Du Plessis “Understanding the legal context” 33.

To give effect to section 24 of the *Constitution* there was a need for a new environmental framework act.⁷⁵ NEMA was developed in line with the co-operative governance principles set out in chapter 3 of the *Constitution*⁷⁶ through a policy development process known as the Consultative National Environmental Policy Process (CONNEPP). It resulted in the publication of the White Paper on Environmental Management Policy for South Africa in May 1998,⁷⁷ which was the basis for NEMA and came into effect on 29 January 1999.⁷⁸ The purpose of the Act as per its long title is:

To provide for co-operative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.

But NEMA did not make provision for mining to be included. Sustainability, as recognised at the Earth Summit in Brazil in 1992, resulted in the drafting of the MPRDA with its focus on sustainable development.⁷⁹ The MPRDA was signed by the President on 3 October 2002 and came into effect on 1 May 2004. The preamble of the MPRDA affirms that the mineral and petroleum resources belong to the nation and that the state is the custodian thereof, it also affirms the state's obligation to protect the environment for the benefit of present and future generations, to ensure ecological sustainable development of mineral and petroleum resources and to promote economic and social development. It also further recognises the need to promote local and rural development and the social upliftment of communities

75 Kidd *Environmental Law* 32.

76 Chapter 3 of the *Constitution of the Republic of South Africa*, 1996.

77 Anon 1997 <http://www.environment.gov.za>.

78 Kidd *Environmental Law* 32.

79 Wells *et al* "Terrestrial Minerals" 547 See also Le Roux *Environmental governance, fragmentation and sustainability in the mining industry* for discussion on mining and sustainability.

affected by mining. As part of the authorisation process⁸⁰ an environmental management plan (EMP) for prospecting right and an environmental management programme (EMPR) for a mining right as set out in section 39 of the MPRDA must be developed. As part of the EMP and EMPR application process an environmental impact assessment (EIA) must be conducted as per the procedures set out in chapter 4 of NEMA,⁸¹ however the DMR is the final decision-maker.⁸² The MPRDA does not incorporate the principles of co-operative governance to a wide extent as it maintains the DMR to be the final decision-maker regarding issues pertaining to environmental authorisations and only allowing other departments to comment on issues.⁸³ Section 40 of the MPRDA states:

40(1) When considering an environmental management plan or environmental management programme in terms of section 39, the Minister must consult with any State department which administers any law relating to matters affecting the environment.

(2) The Minister must request the head of the department being consulted, in writing, to submit the comments of that department within 60 days from the date of the request

The only real co-operative governance provision in the MPRDA is section 43 which relates to the issuing of closure certificates for the final closure of mining operations⁸⁴ and states that a closure certificate can be issued only when the Chief Inspector of the DMR and DWA has confirmed, in writing, that the health, safety and water pollution issues have been adequately addressed.⁸⁵

80 See 3.3.1.

81 Section 38 of MPRDA.

82 Du Plessis *Legal mechanisms for cooperative governance in South Africa* 12.

83 Du Plessis *Legal mechanisms for cooperative governance in South Africa* 5.

84 See 3.7.

85 Du Plessis *Legal mechanisms for cooperative governance in South Africa* 5.

But mining as an activity itself has always been excluded as a listed activity under *Environmental Conservation Act 73 of 1989 (ECA)* and NEMA. On 21 of April 2006 the Minister of Environmental Affairs and Tourism promulgated⁸⁶ GN R385, GN R386 and GN R387.⁸⁷ Activities listed in GN R386 required a basic assessment process⁸⁸ as per regulation 22 of GN R385. Activities listed in GN R387 required a scoping and an EIA⁸⁹ as per regulation 27 of GN R385. For the first time, activities that occurred on mining premises were included. Therefore, if mine was planning to construct or expand any activity as per the lists of activities in GN R386 and GN R387, it was required to do an additional EIA process for each of these activities even if an EIA⁹⁰ in terms of the MPRDA was conducted. This created a lot of confusion within the mining sector, such as in the case of the Mooiplaatz Colliery belonging to Coal of Africa (CoAL).⁹¹ The colliery's EMPR as per the MPRDA was approved in September 2007 which included the activities of construction of infrastructure built for the storage of coal, mining-related structures erected below the flood line, operations resulting in pollution or waste, as well as the building of facilities for the manufacturing, storage or testing of explosives. The colliery did not apply for any approval of these activities under NEMA as these activities were already authorised by the EMPR as per the MPRDA. However, in 2008 the officials from the Mpumalanga Provincial Department of Environmental Affairs issued the colliery with a pre-compliance notice to apply for rectification in terms of section 24G of NEMA. This resulted in the share price of CoAL dropping by 16%. The general understanding within the industry was that a NEMA application, which involves a full environmental impact assessment process which is overseen by provincial environmental authorities, is the same as the

86 In terms of section 24(5) read with section 44 of NEMA EIA regulations.

87 In GG 28753 of 21 April 2006 (Hereafter referred to as GN R385, GN R386 and GN R 387).

88 See 3.3.2.

89 See 3.3.2.

90 Section 39 of NEMA.

91 Van Vuuren 2010 <http://www.miningmx.com>.

MPRDA process, therefore it should not apply to issues directly related to mining. This view was affirmed in the 2009-2010 annual report of the Chamber of Mines:⁹²

Although environmental affairs are a function of both provincial and national government, it has become apparent that NEMA is mainly implemented through the provincial authorities. Mining is a national mandate and thus, in terms of the Constitution, no provincial authority can make a decision on environment-related mining matters.

The list of activities as per GNR385, GN R386 and GN R387 were repealed and replaced on 18 June 2010 when the Minister of Department of Water and Environmental Affairs published new list of activities which came into effect on 2 August 2010. These lists of activities are GN R544, GN R545 and GN R546.⁹³

2.3.2 2007/2008 Reform

During 2007 and 2008 legislative reform resulted in mining activities to be brought under the fold of the framework legislation of NEMA. However, not all of these amendments were put into operation.⁹⁴ The *National Environmental Management Amendment Act 62 of 2008*⁹⁵ (NEMAA) amended primarily Chapter 5 of NEMA which deals with integrated environmental management and is the enabling chapter for environmental authorisations. The new additions included section 24K and 24L which deal with matters of coordination and cooperation between different organs of state, in other words to avoid duplication and to improve cooperation between the different authorities. Section 24L specifically deals with the integration of environmental authorisations. When a listed activity as per chapter 5 of NEMA is also

92 Chamber of Mines 2010 <http://www.bullion.org.za>.

93 In GG 33306 of 18 June 2010 (here after GN R544, GN R545 and GN R546).

94 See also Humby 2009 *SA Public Law* 1-32

95 *National Environmental Management Amendment Act 62 of 2008* (NEMAA) .

authorised by another law or specific environmental management Act (SEMA) an integrated authorisation can be issued.⁹⁶ Section 24K and 24L are already in operation. Section 24N⁹⁷ replaces the EMP with an EMPR as required in the MPRDA. NEMAA includes mining within the ambit of NEMA as follows: the environmental provisions of the MPRDA are shifted to NEMA,⁹⁸ and the Minister of Minerals Resources is introduced as the competent authority in order to bring mining into the EIA regime of NEMA.⁹⁹ The amendments also clarify the roles and responsibilities in terms of environmental management of mining.¹⁰⁰ The MPRDA was also amended. The *Mineral Petroleum Resources Development Amendment Act* 49 of 2008¹⁰¹ makes the Minister of Mineral Resources the responsible person for implementing environmental matters in terms of NEMA, and to align the MPRDA with NEMA. The MPRDAA was signed by the President on 21 April 2009 but the commencement date of the Act has not yet been determined.¹⁰²

For the interim period, a ministerial agreement was reached between the then Minister of Environmental Affairs and the Minister of Mineral Resources which declared that the Minister of Mineral Resources will be the only competent authority of mining activities in terms of NEMA and MPRDA for a period of 18 months, and the Minister of Environmental Affairs will be the appeal authority. This period was declared as phase 1. After the 18 month period of phase 1 had lapsed, then phase 2 of the agreement would commence in which only NEMA would apply and the DMR would be the competent authority for a further period of 18 months. After the 18 month period of phase 2 had been completed, then phase 3 would be the final period

96 Britz, Fourie & McCourt 2009 <http://www.environment.gov.za>.

97 NEMAA.

98 Section 24P, 24Q and 24R.

99 S 1.

100 Britz, Fourie & McCourt 2009 <http://www.environment.gov.za>.

101 *Mineral Petroleum Resources Development Amendment Act* 49 of 2008 (MPRDAA).

102 Tucker 2011 [http:// www.gettingthedealthrough.com](http://www.gettingthedealthrough.com).

would follow wherein which all the environmental authorisations would revert back to the environmental authorities and the Minister of Mineral Resources would cease to have any authority to issue environmental authorisations. These agreements would take effect once the MPRDAA commences.¹⁰³

2.3.3 Maccsands case

The question always existed as to whether or not the authorisations as per the MPRDA were the only authorisations for mining associated activities that a mine required. A recent Constitutional Court judgment¹⁰⁴ clarified the issue. On 12 April 2012 the Constitutional Court delivered a judgment in the applications for leave to appeal against the judgments of the Supreme Court of Appeal (SCA) in September 2011, which it upheld an appeal against the orders of the Western Cape High Court, Cape Town which were delivered on the 20 August 2010.¹⁰⁵ The Western Cape High Court issued a judgment in favour of the City of Cape Town and the MEC for Local Government Affairs regarding the interdict prohibiting Maccsand from continuing with their mining activities until they had obtained the authorisations for the land to be used for mining in terms of the *Land Use Planning Ordinance* 15 of 1985 (LUPO) and NEMA for carrying out activities listed in items 12 and 20 of GN R386.¹⁰⁶ Maccsand appealed against the decision. The SCA upheld the Western Cape High Court decision regarding the authorisation in terms of LUPO and set aside the orders to the effect for the requirement to obtain environmental authorisations in terms of NEMA.¹⁰⁷ Maccsand subsequently appealed against the SCA decision to uphold the interdict with regard to the requirement for an authorisation in terms of the LUPO,

103 Britz, Fourie & McCourt 2009 <http://www.environment.gov.za>.

104 *MaccSand (Pty)Ltd v City of Cape Town and Others* 2012 4 SA 181 (CC); See Paterson 2011 *SA Public Law* 567-577 for discussion of this case, See also Paterson 2010 *SA Public Law* 692-697 for discussion of similar issues.

105 *City of Cape Town v MaccSand (Pty) Ltd* 2010 6 SA 63 (WCC).

106 *City of Cape Town v MaccSand (Pty) Ltd* 2010 6 SA 63 (WCC).

107 *MaccSand (Pty) Ltd v City of Cape Town and Others* 2011 4 SA 601 (SCA).

and the Province cross-appealed the SCA decision to grant declaratory relief with regards to the conflict between the MPRDA and NEMA. The Constitutional Court upheld the decision of the SCA with regard to the authorisation in terms of LUPO, but refused to grant the province leave to cross appeal. However, the court further clearly and correctly held that the MPRDA, like the NEMA, is intended to promote section 24 of the *Constitution* and that these statutes require the Minister of Minerals Resources to consult and co-operate with environmental authorities who administer NEMA, thereby emphasising co-operative governance. The judgment also confirmed that mining operations must comply with all the laws and that the MPRDA does not take precedence over other legislation. In other words the MPRDA must respect the constitutionally mandated functions of the different spheres of government and recognise the essential roles of DWA, DEA and local government in decisions related to mining.¹⁰⁸

To understand the complexities of the existing environmental authorisations pertaining to mining operations and to establish if they can be aligned, each of the environmental authorisations will be discussed,¹⁰⁹ as well as the challenges¹¹⁰ regarding the authorisation processes.

3 Mining authorisation process

The fundamental principles in section 3 of the MPRDA state that the mineral and petroleum resources of the country belong to all the people in South Africa, and that

108 See also Fourie 2012 <http://www.cer.org.za>; See Paterson 2011 *SA Public Law* 567-577, See also Paterson 2010 *SA Public Law* 692-697.

109 See 3

110 See 4

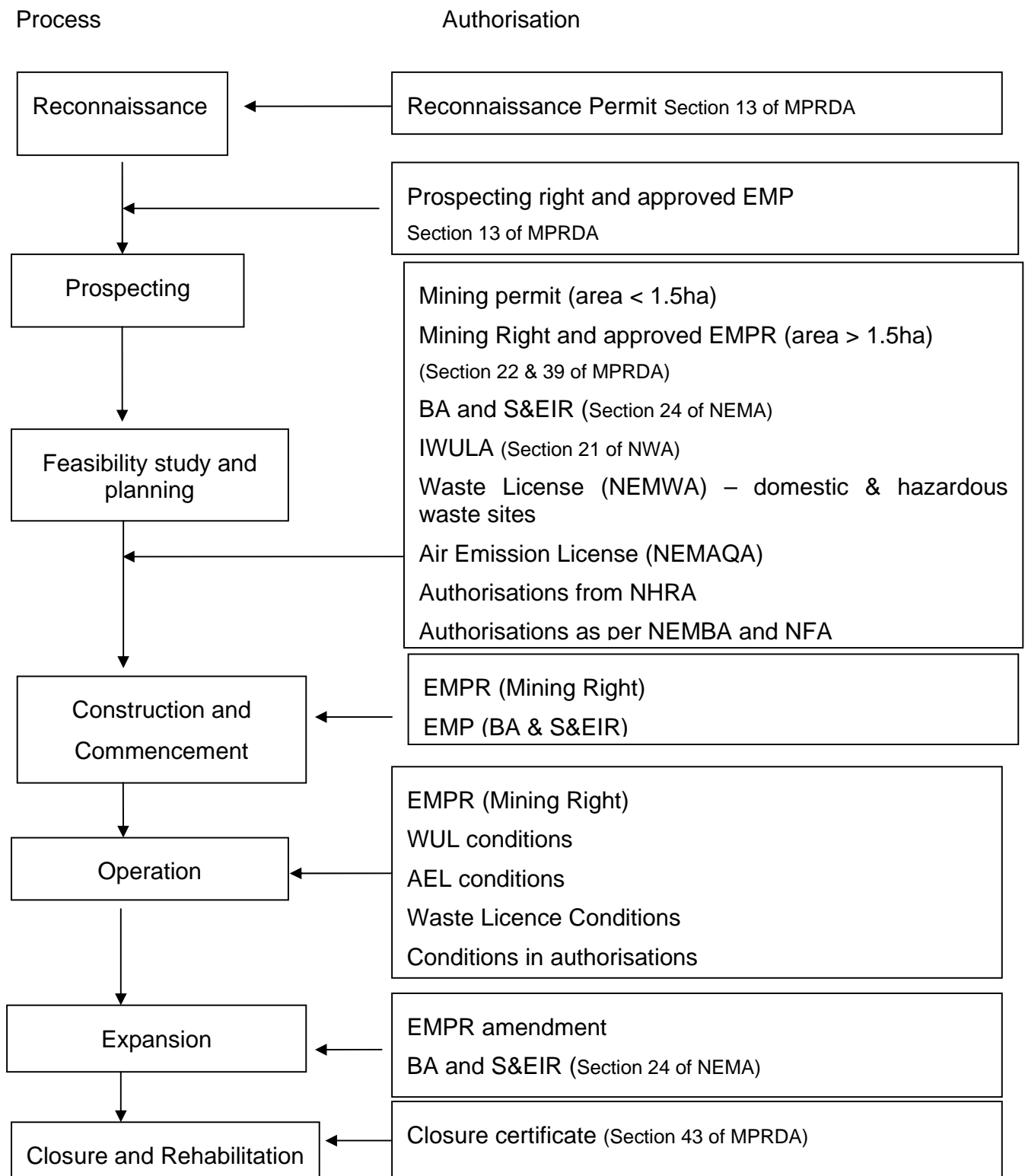
the state will be the custodian thereof for the benefit of all South Africans.¹¹¹ The DMR is the governmental department that manages this function on behalf of South Africa. It further states in the MPRDA in section 3(2) that:

- (2) As the custodian of the nation's mineral and petroleum resources, the State, acting through the Minister, may-
 - (a) Grant, issue, control, administer and manage any reconnaissance permission, prospecting right, permission to remove, mining right, mining permit, retention permit, technical co-operation permit, reconnaissance permit, exploration right and production right.

There are also other authorisations required by a mining operation as illustrated in the following figure of mining process life cycle which highlights what authorisations are required during each part of the life cycle. The different authorisation procedures will then be discussed.

111 See Van der Schyf 2010 *PER* 122-159; Viljoen *The public trust doctrine in South African water law*.

Figure 1: Mining life cycle and the various authorisations required



3.1 Reconnaissance

The application for reconnaissance¹¹² permission is set out in section 13 of the MPRDA and the issuing of permission is subject to the following conditions:

- that no person holds a prospecting right, mining right or a mining permit for the same mineral and land,¹¹³ and that
- the applicant has the financial and technical capacity to carry out the proposed reconnaissance surveys as per the reconnaissance work programme.¹¹⁴

The reconnaissance permission is valid for two years and gives permission to the holder after consultation with the landowner or lawful occupier to enter such land to conduct the reconnaissance surveys.¹¹⁵ No other authorisation in terms of other legislation is required at this stage.

3.2 Prospecting

The procedures for application for a prospecting¹¹⁶ right are set out in section 16 of the MPRDA. The application must be lodged with Regional Manager of the regional office of the DMR. If the Regional Manager accepts the application he must notify the applicant in writing within 14 days to submit an EMP and to consult with the landowner or any other affected party and to submit the results of the consultation within 30 days from the date of notice.¹¹⁷ The content of the EMP is stipulated in

112 See 2.2.1.

113 S 13(2)(b).

114 S 14.

115 S 15(1).

116 See 2.2.2.

117 S 16. See also Humby 2012 *PER* 166-188 for a discussion on public participation during the prospecting phase.

regulation 52 of the Mineral and Petroleum Resources Development Regulations (MPRDR)¹¹⁸ and requires the following:

- description of the environment, the potential impacts, the significance of the impacts and the control measures to minimise the impacts;
- monitoring and performance assessment of the EMP;
- closure with its environmental objectives, including the cost determination for closure and the details of the method for financial provision; and
- record of the public participation process and the outcomes thereof.

When the Regional Manager receives the EMP and the outcome of the consultation process, he or she will then forward the application to the Minister of Mineral Resources for consideration.¹¹⁹ The Minister may grant a prospecting right if all the conditions set in section 17 of the MPRDA have been met. The duration of the prospecting right may not exceed 5 years,¹²⁰ however, an application for extension or renewal can be made.¹²¹ The application for renewal as per section 18 of MPRDA is allowed only once and may not exceed 3 years.

Section 20 of the MPRDA stipulates that written permission is required from the Minister to remove or dispose of bulk samples of any minerals found by the holder of a prospecting right. This has led to lot of abuse by holders of such rights especially within the coal mining industry where the holder of such a right has obtained

118 GN R527 in GG 26275 of 23 April 2004.

119 S 16.

120 S 17(6).

121 S 18.

permission from the Minister removes a large quantity of ore as a bulk sample which they then sell into the market.¹²²

3.3 Feasibility study and planning

Once a prospecting operation has established that there are sufficient quantities of minerals to be mined, the mining company will conduct a feasibility study followed by detailed planning. As part of this process, the company will determine all the authorisations that are required and lodge the various applications as per the requirements.

3.3.1 Mining right

The most important application is for a mining right and the procedures for application thereof are set out in section 22 of the MPRDA. The application must be lodged with the regional manager of the regional office of the DMR. If the Regional Manager accepts the application he must notify the applicant within 14 days in writing to conduct an EIA and submit an EMPR as set out in section 39, and to notify and consult with interested and affected parties within 180 days from receiving the notice.¹²³

Section 39 states that every applicant for a mining right in terms of section 22 must submit an EMPR within 180 days to the regional manager. The EIA process as

122 Caird 2010 <http://www.environment.co.za>.

123 S 22.

stipulated by regulation 48 of the MPRDR consists of a scoping report and followed by an EIA report. The scoping report must¹²⁴

- give a description of the environment before mining has commenced;
- determine the potential environmental, social and cultural impacts;
- determine alternative land uses in other words determine the impact if the mining operation should not proceed;
- give a description of the mining plan;
- give a description of the public participation process; and
- identification of additional studies and investigations.

The scoping report must be forwarded to the office of Regional Manager within 30 days from the date of notification in terms of section 39(1) of the MPRDA. The regional manager must evaluate report, request relevant government departments and organs of state to submit written comments on the scoping report within 30 days from date of the request. The regional manager can further request the applicant to forward additional information or to conduct additional investigations. The regional manager must then forward a summary all comments to the applicant, who must address and incorporate this summary in the EIA report and EMPR.¹²⁵ The EIA must:

- give an assessment of the environment that will be affected, including cumulative impacts;
- assess the environment and determine the environmental, social and cultural impacts from any other potential land uses that might be identified;
- conduct comparative studies on the impacts of mining operations and those of other potential land uses;

124 Regulation 49(1) of MPRDR.

125 Regulation 49(5) of MPRDR.

- determine controls to mitigate the impacts from the mining operation and the monitoring and management thereof; and
- submit the details of the public participation process and including how issues raised was addressed.

An EMPR, based on the EIA, must be developed to include the environmental objectives and goals for closure, management of the identified environmental impacts, socio-economic conditions as per the social labour plan and the historical and cultural aspects.¹²⁶ The Minister has to approve the EMPR within 120 days if the application complies with the requirements within subsection 39(3) of the MPRDA and the applicant has made the prescribed financial provision for the rehabilitation or management of negative environmental impacts.¹²⁷ When the minister considers an environmental management programme, he or she must consult with any state department which administers any legislation relating to matters affecting the environment. The head of the department has 60 days from date of request to comment in writing.¹²⁸ The mining right comes into effect on the day that the EMPR is approved as per section 39(4) of the MPRDA. In addition to the application for a mining right, the mines must also determine if any of the specific activities to be constructed on the mine will require any authorisations as per NEMA.

3.3.2 Basic assessment and scoping and environmental impact report as per NEMA

Chapter 5 of NEMA deals with integrated environmental management with its general objective to promote the application of appropriate environmental management tools to ensure the integrated environmental management of

¹²⁶ Regulation 51 of MPRDR.

¹²⁷ S 41(1).

¹²⁸ See 4 for challenges pertaining to not commenting by other departments.

activities.¹²⁹ To give effect to the objectives of integrated environmental management, the relevant competent authority that is charged by this Act with granting authorisations¹³⁰ to the listed activities must take into consideration the potential impact of these listed activities by ensuring investigation, assessment and reporting thereof.¹³¹ Section 24(2) of NEMA states the following:

- The Minister, and every MEC with the concurrence of the Minister, may identify -
- (a) activities which may not commence without environmental authorisation from the competent authority;
 - (b) geographical areas based on environmental attributes in which specified activities may not commence without environmental authorisation from the competent authority;
 - (c) geographical areas based on environmental attributes in which specified activities may be excluded from authorisation by the competent authority;
 - (d) individual or generic existing activities which may have a detrimental effect on the environment and in respect of which an application for an environmental authorisation must be made to the competent authority:

Provided that where an activity falls under the jurisdiction of another Minister or MEC, a decision in respect of paragraphs (a) to (d) must be taken after consultation with such other Minister or MEC.

GN R543 regulates the procedure in regards to the submission, processing and consideration of, and decision on the applications for environmental authorisations for the commencement of activities so as to prevent impacts on the environment or minimise impacts by management of these impacts.¹³²

129 S 23.

130 See 2.3.

131 S 24.

132 An activity is defined as an activity as identified in any notice published by the Minister in terms of section 24D(1)(a) of NEMA as listed activity or specified activity.

The activities listed in GN R544 and GN R546 requires a basic assessment (BA).¹³³ Activities listed in GN R545 require a scoping and an environmental impact report (S&EIR).¹³⁴ The activities that normally occur on the mine that require authorisation in terms of NEMA are as follows:¹³⁵

- construction of roads
- construction of pipelines
- diesel storage tanks
- construction of activities that requires an authorisation in terms of other legislation for the control of pollution, such as tailings dams. One of the authorisations for the requirement to control pollution is a water use license.

The application for an authorisation must be completed on an official application form obtainable from the relevant competent authority.¹³⁶ The competent authority must notify the applicant within 14 days, acknowledging the receipt or rejecting it.¹³⁷ An applicant for authorisation of an activity is required to appoint an environmental assessment practitioner (EAP) at his or her own cost to manage the application¹³⁸ and the applicant must verify that the EAP is independent and has the relevant expertise to conduct EIAs as well as the relevant knowledge of NEMA¹³⁹ and the regulations.¹⁴⁰ The EAP must determine if a BA or S&EIR is to be done.¹⁴¹ The EAP will submit the applications to the provincial department of environmental affairs who

133 Regulation 22 of GN R543.

134 Regulation 27-33 of GN R543.

135 Own experience at Nkomati Mine 2005-2010.

136 Regulation 12 of GN R543.

137 Regulation 13 of GN R543.

138 Regulation 16 of GN R543.

139 NEMA.

140 GN R543.

141 Regulation 19 in GN R543.

will determine if it falls within their mandate to authorise or failing which they will forward it to the national department of environmental affairs if it is beyond their mandate.

For a basic assessment, the EAP must prepare an basic assessment report as per the requirements of regulation 22¹⁴² and conduct a public participation process in terms of regulation 54¹⁴³ which consists of fixing notice boards on the boundary fence of the site of the activity, giving written notices to the owner or person in control of the land, occupiers, neighbours of the land and all relevant authorities and placing adverts in either a local newspaper or *Official Gazette*. The EAP must compile a register of all I&APs that are entitled to comment on the written submissions. I&APs must be allowed a period of time that is approved by the competent authority to comment on the reports. The EAP will submit the basic assessment report to the competent authority together with the comments and responses from the public participation process. The relevant competent authority must acknowledge receipt within 14 days¹⁴⁴ and within 30 days thereafter, either accept or reject the report or request additional information in writing.

For the S&EIR, the EAP must submit an application form to the competent authority and commence with the public participation process as per regulation 54,¹⁴⁵ and in addition give notice to any government department that has jurisdiction over any aspect of the activity and maintain a register of all I&APs. The EAP must compile a scoping report as per regulation 27¹⁴⁶ for submission to the relevant authorities together with the comments, views and responses of the public participation process.

142 GN R543.

143 GN R543.

144 Regulation 16 of GN R543.

145 GN R543.

146 GN R543.

Within 30 days after receipt the authority will, in writing, either accept or reject the report or request additional information. The authority will, after acceptances of scoping report, inform the EAP to proceed with the study of the EIA. The EIA report must be compiled as per the requirements of regulation 31¹⁴⁷ and must be submitted together with the required specialist studies¹⁴⁸ and a draft EMP as set out in regulation 33.¹⁴⁹ The competent authority must, within 60 days after the receipt, of the report either accept, reject or forward the report for specialist review. The authority must, within 45 days after acceptances of the report, grant reject the authorisation. In addition to the MPRDA and NEMA, mining operations require authorisations in terms of the NWA.

3.3.3 Integrated water use license

Section 21 of the NWA identifies the following water uses that require a water use license:

- (a) taking water from a water resource;
- (b) storing water;
- (c) impeding or diverting the flow of a watercourse;
- (d) engaging in a stream flow reduction activity contemplated in section 36;
- (e) engaging in a controlled activity identified in section 37(1) or declared under section 38(1);
- (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
- (g) disposing of waste in a manner which may detrimentally impact on a water resource;
- (h) disposing in any manner water which contains waste from, or which has been heated in any industrial or power generation process;
- (i) altering the bed, banks, course or characteristics of a watercourse;

147 GN R543.

148 Regulation 32 of GN R543.

149 GN R543.

- (j) removing discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- (k) using water for recreational purposes.¹⁵⁰

The following are examples of water uses that will occur at a mining operation:

- abstraction of water from a source¹⁵¹
- construction of weirs and bridges¹⁵²
- dewatering of underground workings or open pits¹⁵³
- tailing dams and the associated return water dams¹⁵⁴
- discharging of excess water from the return water dams into a receiving water source¹⁵⁵
- discharging of the cooling water from the process plants into a receiving water source¹⁵⁶
- Storing of water¹⁵⁷
- Irrigation with water containing waste¹⁵⁸

If a mine intends to have a dam which can be either a dewatering evaporation dam, tailing dam or a return water dam with a capacity of more than 50000 m³ and with a

150 S 21.

151 S 21(a).

152 S 21(c) and (d).

153 S 21(j).

154 S 21(b) and (g).

155 S 21(f).

156 S 21(h).

157 S 21(b)

158 S 21(g)

vertical dam wall height of more than 5m, it is then declared as a dam with a safety risk.¹⁵⁹ Dams that are declared as a safety risk have to be registered and the mine must apply for a permit before it can be constructed.¹⁶⁰

DWA also published GN 704¹⁶¹ for the regulations of the use of water for mining related activities and the protection of water resources in terms of section 26 of the NWA. Regulation 2¹⁶² requires that DWA be notified of all water pollution control measures that are in place before commencement of the mining activities. Regulation 4¹⁶³ stipulates various restrictions on the locality of mining activities, but a mine may apply for an exemption to construct activities or mine within the 1:100 year flood line or within 100m from a watercourse, estuary or borehole.

3.3.4 Waste license

Mining waste is regulated by the MPRDA. There is, however, other waste on a mining area that is regulated by other legislation. The first thing that must be taken into consideration is section 4 of the NEMWA which excludes residue deposits and residue stockpiles that are regulated in terms of the MPRDA from this Act.¹⁶⁴ As per the MPRDA residue deposit means:

Any residue stockpile remaining at the termination, cancelation or expiry of a prospecting right, mining right, mining permit exploration right or production right.¹⁶⁵

159 S 117 of the NWA.

160 S 119 of the NWA.

161 In GG 20119 of 4 June 1999.

162 GN 704.

163 GN 704.

164 Section 4 NEMWA.

165 S 1.

Residue stockpile means:

Any debris, discard, tailings slimes, screenings, slurry, waste rock, foundry sand, beneficiation plant waste, ash or any other product derived from or incidental to a mining operation and which is stockpiled, stored or accumulated for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or production permit.¹⁶⁶

These definitions include all mining related waste such waste rock dumps, tailings dams and beneficiation plant waste such as slag waste if the smelter is situated within the declared mining area.

The only waste license¹⁶⁷ that a mine has to apply for is for temporary storage general waste¹⁶⁸ and hazardous waste¹⁶⁹ at either a transfer facility or container yard and if the mine is situated such that it cannot be serviced by waste collection service provider and therefore is required to operate its own landfill site, it then has to apply for a waste license for the disposal of waste on land. The size of the disposal site will determine if it is either a category A or category B listing in terms of NEMWA.¹⁷⁰ Waste activities as listed under category A require a BA¹⁷¹ as per section 24(5) of NEMA and waste activities under category B requires a S&EIR¹⁷² as per section 24(5) of NEMA.¹⁷³ All category A licenses are issued by the provincial departments dealing with environmental affairs, and category B licenses by the national Department of Environmental Affairs.

166 S 1 MPDRA.

167 NEMWA.

168 Category A of Schedule 1 as per s 19 of NEMWA.

169 Category A of Schedule 1 as per s 19 of NEMWA.

170 Schedule 1 as per s19 of NEMWA.

171 See 3.3.2.

172 See 3.3.2.

173 Schedule 1 as per s 19 of NEMWA.

3.3.5 Authorisations from NHRA

As part of the specialist studies conducted for the approval of a mining right as per the MPRDA, a survey will be conducted to establish if there are any archeological, paleontological sites, meteorites, burial ground and graves within the mining area. If any such sites are detected the South African Heritage Resources Agency (SAHRA) must be notified. If such sites, objects or buildings needs to altered, demolished or removed and or graves to be exhumed and relocated, a permit is required in terms of NHRA.¹⁷⁴ The NHRA also requires that any person who intends to undertake a linear development, for example that includes the construction of a road, wall powerline, pipeline, canal in excess of 300 meters or changing the character of a site exceeding 5000m² to do a EIA as per section 24 of NEMA.¹⁷⁵ In order to relocate graves, the mines have to get a letter from the families of the buried stating that they give permission for the relocation of the graves. Because of the cultural implications of exhuming bodies, the families have to come to an agreement and this process can take anything from a year to five years and often requires financial compensation from the mines to the families.¹⁷⁶ SAHRA will not issue an authorisation unless there is a letter from the family

3.3.6 Authorisations in terms of NEMBA and NFA

In terms of section 57 of the *National Environmental Management Biodiversity Act 10 of 2004* (NEMBA), no restricted activity involving a specimen of a listed threatened or protected species may be carried out without a permit. The restricted activity involves the conveying, moving or translocation of any protected or threatened listed

174 Ss 34-36 of NHRA

175 S 38 of NHRA.

176 Own experience working at Nkomati mine as an environmental superintendent from 2005-2010.

specimens.¹⁷⁷ This activity normally occurs with the establishment of open pit mining where listed protected and threatened species are identified during the biodiversity assessments which form part of the specialists studies for the approval of the mining right, and the species needs to be relocated.

The *National Forest Act* 84 of 1998 has a similar clause for protected tree species which require a license from the Department of Water Affairs to cut, destroy, disturb, damage or remove protected tree species.¹⁷⁸ These authorisations are less complicated than any of the other authorisations as they are usually managed by dedicated conservation officials within the provincial conservation departments .¹⁷⁹

3.4 Construction and commencement

The EMPR, which is based on the EIA report, sets out the requirements regarding the various environmental controls during the construction and commencement phase. Performance assessments must be carried out on a regular interval as set out in the EMPR to ensure compliance and verify appropriateness and adequacy.¹⁸⁰ The EMPR performance assessments can be done by an internal person who has appropriate qualifications and experience. For each of the activities as per the listed activities in GN R544, GN R545 and GN R546 for which a BA or S&EIR were done, an approved EMP need to be compiled. Performance assessment against the conditions in each EMP must be conducted on a monthly basis by an approved external expert during the construction phase to verify compliance.

177 S57(c)(viii) of the *National Environmental Management Biodiversity Act* 10 of 2004.

178 S15 of the *National Forest Act* 84 of 1998.

179 Own experience working at Nkomati mine as an environmental superintendent from 2005-2010.

180 Regulation 55 of GN R527.

3.5 Mining operation

As with the construction and commencement phase, the EMPR also includes environmental controls against which performance assessments must be conducted on either annually or biannually.¹⁸¹ The water use licenses,¹⁸² air emission licenses¹⁸³ and waste licenses¹⁸⁴ will have a set of conditions against which the mines will need to comply, which will include monitoring requirements and required audits that needs to be conducted against prescribe schedules.¹⁸⁵

3.6 Expansions

Any expansion or changes made at a mine will require an amendment to the EMPR. If these include any expansion to a listed activity the listed in GN R544, they will trigger a BA or if an additional or new activity is required as per listed activities in GN R544, GN R545 and GN R546 a BA or S&EIR will be required.¹⁸⁶

181 Regulation 55 of GN R527.

182 NWA.

183 NEM:AQA

184 NEMWA.

185 See 4 for discussion on the challenges due to lack of capacity.

186 See 3.3.2

3.7 Closure

As part of the EMPR the specific environmental objectives and specific goals for mine closure must be determined.¹⁸⁷ The cost for closure¹⁸⁸ and the detail of method for providing of financial provision for closure must be determined and must include costs for premature closure, decommissioning and final closure of the operation, as well as post closure management of residual and latent environmental impacts.¹⁸⁹

No closure certificate may be issued unless the Chief Inspector of the DMR and each government department charged with the administration of any law which relates to any matter affecting the environment, have confirmed in writing that all provisions regarding health and safety, and management of pollution to water resources, the pumping and treatment of extraneous water and compliance with conditions of the environmental authorisation have been addressed. In other words, no closure certificate may be issued unless Chief Inspector and DWA have confirmed in writing that all provisions regarding health, safety and management of pollution to water resources have been addressed.¹⁹⁰

187 Regulation 51 and 52 of GN R527 of 23 April 2004.

188 Regulation 54 of GN R527 of 23 April 2004.

189 Regulation 53 of GN R527 of 23 April 2004.

190 S 43.

4 Challenges and way forward

4.1 Challenges

The main challenge the mines faces is the fragmentation of the mining authorisation process as has been depicted in the preceding chapter.¹⁹¹ Both institutional and legislative fragmentation occurs on a horizontal level as observed in the various sectoral, or silo based environmental acts and their authorisation requirements that are administered by different departments.¹⁹² The MPRDA, NEMA, NEMWA, NHRA and NEM:AQA all require an EIA to be conducted. The result of this is that a new proposed mining operation has to conduct various EIAs in accordance with the requirements of the various Acts and per the standards of the various departments. This is unnecessary duplication of the same information in different formats as per each department's requirements.

Each department has different standards which are applied to guide the approval of authorisations. The MPRDA requires a scoping and an EIA as the basis of the EMPR for a proposed mining operation,¹⁹³ which includes all the activities within the mining area.¹⁹⁴ The scoping and EIA as per the MPRDA are not prescriptive in the methodology as to how the public participation process must be conducted, but allows the applicant to indicate how they will conduct the public participation process, which of course needs to be approved by the regional office of the DMR. The NEMA

191 See 3

192 Kotze *Improving unsustainable governance in South Africa 77-79*; Louw *The environmental regulation of uranium mines in Namibia – a project life cycle analysis* for discussion of fragmentation of mining applications in Namibia.

193 See 3.3.1.

194 See 2.2.3 for definition of mining area.

and its sectoral legislation¹⁹⁵ require a BA or S&EIR for a specific listed activity within a mining area.¹⁹⁶ The BA or S&EIR is very prescriptive in the methodology of how a public participation process must be conducted, even detailing of the size of the notice boards. In one instance when the authorities were approached by the mines to propose a single public participation process for both the MPRDA and NEMA the authorities were not in favour of the proposal.¹⁹⁷ The conditions which are stipulated in the various authorisations by the different departments can vary which can result in confusion.¹⁹⁸ Fragmentation within the same department also leads to unnecessary time delays. For example, the application for an integrated water use license at the DWA is administered by various sections within the same regional office (water quality, water supply and groundwater resources) and the various sections at their head office (dam safety, engineering support and reserve determination). This results in severe time delays, loss of documentation and confusion within the same department.¹⁹⁹

The next major challenge is the lack of capacity within the various departments, which includes both human and financial capacity which negatively influences sustainable environmental governance.²⁰⁰ The lack of capacity of governmental officials has been observed within all the departments that deal with authorisations pertaining to mining. It is evident that the government officials do not always have the capacity and competence to evaluate the information supplied within the

195 NEMWA, NEM:AQA.

196 See 3.3.2.

197 Own experience at Nkomati Mine 2005-2010, Expansion at the mine required an EMPR amendment and EIAs for various listed activities, the DMR was in favour of one public participation process but Mpumalanga provincial department of environmental affairs required a separate public participation process for their authorisation processes.

198 Nel, Kotze and Snyman *Strategies to integrate environmental policy at the operational level 3*.

199 Own experience at Nkomati mine where I submitted an integrated water use license to the Mpumalanga Regional Office in April 2006, the department lost the documents four times and has up to date not issued the integrated water use license as per NWA. See also 3.3.3.

200 Kotze "Environmental governance" 116.

authorisation documents and are therefore unable to make any decisions. Due to the fear of being exposed, the officials usually request additional information which causes further time delays at the cost of mining operations. The main reason for the lack of expertise within the departments is that most officials are fresh from academic institutions and do not have the required work related experience. The issue is further exacerbated by the high turnover of personnel as a result of either being reassigned or promoted to other sections, or due to resignations to follow better prospects in the private sector.²⁰¹ The impact is that the continuity of understanding the issues around a specific authorisation is lost when the officials who were dealing with a specific authorisation process are no longer involved. This ultimately causes time delays and cost to the mining operations.²⁰²

The next challenge is the lack of communication and cooperation between the various government departments and within the government departments themselves. The lack of communication and cooperation results in the duplication of actions required for an authorisation processes for example, the various EIAs required in the MPRDA, NEMA, NHRA and NEMWA. Such duplications do not contribute to the effective use of limited resources and budgets.²⁰³ The mining industry has in the past experienced that the other government departments do not submit comments of which is a concern to mining industry, as this is the opportunity for the other departments to state what other authorisations they require as in the case of Mooiplaat Colliery²⁰⁴ where the EMPR was approved in 2007 after it was submitted to the provincial environmental affairs department for comment. The provincial environmental affairs department did not state at this stage the requirements for the authorisation of activities as per NEMA, but in 2008 the officials

201 Kotze *Environmental governance* 116.

202 Own experience at Nkomati Mine 2005-2010 and Assmang Manganese 2010-current.

203 Kotze, *Environmental governance*, 116.

204 See 2.3

of this department issued the mine a notice of intent to issue directives for the construction of these activities.²⁰⁵

Of further concern is the lack of focus in the authorisation requirements on certain activities that have detrimental, negative environmental impacts. An example of this is mining waste which is currently excluded from the NEMWA and only addressed in the MPRDA and NWA. The United States of America's Environmental Protection Agency recognised in 1987 that problems related to mining waste may be rated as second only to global warming and stratospheric ozone depletion in terms of ecological risk.²⁰⁶ This is specifically crucial to South Africa. In 1997 alone mining produced an estimated 468 million tons of mining waste per annum which equates to 81% of South Africa's total waste.²⁰⁷ None of the authorisation processes have any detailed requirements for closure and rehabilitation. In the NEMA process there is mention of closure and rehabilitation but no detailed focus of what is required. The MPRDA on the other hand focuses on closure and rehabilitation, but mainly on the financial provision and not on any technical and physical requirements which could minimise environmental impacts such as ongoing rehabilitation during the operational phase. There is also no requirement for the alignment of closure objectives with the local authorities integrated development plans. Numerous mining companies have experienced situations where they are required to borrow money from a financial institution who insists that the mines comply with the Equator Principles. The Equator Principles are a voluntary set of standards for determining, assessing and managing social and environmental risk in project financing.²⁰⁸ When the mines are audited by the financial institution auditors, one of the major findings is that while the closure

205 Van Vuuren 2010 <http://www.miningmx.com>.

206 O'Brien 2011 <http://sesolutions.co.za>.

207 Bosman "Integrated Waste Management" 728.

208 Anon 2006 <http://www.equator-principles.com>.

plans comply with the MPRDA, they do not comply with requirements of the Equator Principles.²⁰⁹

The question is how an application process can be introduced that may address some of these challenges.

4.2 Proposed application process

Because mining is such a dynamic process, impacting on various components of the environment, such as water, biodiversity, loss of agricultural land as well as impacting on the social and economic needs of people, it cannot be controlled in a sustainable manner in the current fragmented, silo approach. Therefore, an integration of the fragmented legislation consisting of regulatory tools, processes and procedures, and the integration of fragmented institutional and administrative structures, processes and procedures into a streamlined and aligned governance effort that will achieve a single policy objective is required.²¹⁰ A one stop environmental governance shop has been proposed by Kotze²¹¹ with a single environmental governance act that provides that provides for clearly delineated roles, mandates and responsibilities.²¹² The environmental and social impacts from mining, when compared to other industries, is on such a scale that to include the authorisation of mining operations as part of any authorisation process of an listed activity does not afford it the attention it deserves. Sectoral legislation under the auspices of NEMA may have the desired outcome.

209 Own experience at Nkomati Mine 2005-2010.

210 Kotze *Improving unsustainable governance in South Africa* 93.

211 Kotze *Improving unsustainable governance in South Africa* 97.

212 See also Feris 2010 *PER* 73-99 for discussion on environmental governance, transparency, accountability, sustainability, etc.

The mining operations must be dealt with as one entity and authorised as one entity. In other words, one authorisation that includes all the various components such as water, biodiversity, air, waste etc is what is needed. This can be administered by a specialist sub-department within the Department of Environmental Affairs. The proposal made is based on the phases of the life cycle of a mine which can be distinguished in a mining process.²¹³

4.2.1 Pre-application phase

The first step of the authorisation process is the pre-application phase. The following four specialist studies should be conducted prior to any other process and these include:²¹⁴

- Financial study

The financial study would include a financial model for the life of mine with predictions of net profit, financial benefits for surrounding community such as employment etc. This will establish if the financial gains will be more lucrative than alternative sustainable incomes in the future such as agriculture, ecotourism etc. and that the rehabilitation of negative impacts will not outweigh the financial gains.

- Social impact study

This should focus on the negative and positive social impacts of the mining operations, such as the potential employment opportunities for the locals,

²¹³ See 2.2.

²¹⁴ Based on my own experience within the mining industry at Nkomati Mine and Assmang Manganese from 2002 – up to date, where I have identified these specialist studies as being important to be able to make relevant required decision.

such as the loss of agricultural land, long term environmental impacts, financial growth during the operations period of mining including the creation of employment opportunities for the surrounding communities and the decline in financial growth after the mining operations has come to an end.

- Water study

In light of the fact that South Africa is a water scarce country,²¹⁵ and that mining operations having a severe impact on water resources, resulting in the permanent loss of water resources, a detailed study is required of what the impact of the mining operation will have on the surrounding water sources, surface and groundwater. This will determine if the losses of the specific water resource or impacts on the water resource, by proposed new mining activity will impact negatively on any other possible sustainable development activities.

- Biodiversity study

A survey should be conducted to identify any sensitive biodiversity ecosystems, including lists of all red data species and the impact of the operation on the ecosystem must be determined.

The specialist studies should be forwarded to the relevant section within DEA together with the notification of intent to establish a mine. The reason for the specialist studies is to establish upfront if there are any major concerns that will prevent the mining operation to proceed before the money of the proposed owners of the mine and the resources of the department are wasted. The department must have officials who have the relevant experience or establish a co-operative

215 King, Maree and Muir "Freshwater systems" 427

committee from various departments such as the DMR, DWA, DEA and provincial conservation departments to evaluate the specialist studies and determine level of impact, ensuring that the proposal falls within the perimeters for sustainable development. If agreement is reached that a mine can proceed with an application for a mining authorisation, the mine should be notified in writing by the director general of DEA.

4.2.2 Application phase for authorisation

The next process to be followed should be the same for a S& EIR²¹⁶ whereby a scoping procedure is followed consisting at least consist of a public participation process. During this process the specialist studies should be made available with the comments from the officials from the relevant section within DEA for perusal by the public and to submit comments.²¹⁷ The additional studies to be conducted must be determined at this point. A period for comment from I&APs and other relevant organs of state must be allowed and period for the response from the applicant and the relevant section within DEA. The scoping report together with all communications from I&APs and the relevant organs of state must be submitted to the department.

As soon as the scoping report is accepted the applicant can proceed with the additional studies as determined in this phase. Here a combination of an EIR and the EMPR must be followed. The reports must be divided into three distinct periods namely; pre-construction and construction phase, operational phase and the closure and rehabilitation phase.

216 See 3.3.2.

217 See 3.3.2.

4.2.2.1 Preconstruction and construction phase

This phase must describe all existing environmental conditions, the designs of the mine layout to minimise impacts on the environment and the surrounding environment. The identification of all activities that will be required and possible future activities including possible expansion of activities, the use of best available technology²¹⁸ and the controls around construction should be determined.

4.2.2.2 Operational Phase

This phase will require determining all environmental impacts during the operational phase as identified in the specialist studies as well as the controls that need to be implemented to prevent and minimise the identified impacts. The controls should be stipulated in various management activities which need to be conducted including the time requirements, either daily, weekly, monthly, quarterly or annually. Monitoring requirements for each activity should be set. This will include trigger parameters that will initiate further specialist studies. Requirements for the operation towards closure and rehabilitation must be established upfront and should be part of the monitoring requirements. The reporting structure for non-compliance against the targets set out in the monitoring requirements must be stipulated. All activities that might result in an emergency should be identified, such as major effluent pipeline failures, and a detailed emergency plan for each type of emergency should be developed.

²¹⁸ NEMA refers to the best practicable environmental option in S 1, while the term is not defined in the MPRDA. Due to the scope of the dissertation it is not possible to provide a discussion on the interpretation of BAT and BPEO etc.

4.2.2.3 Closure and rehabilitation

This is probably the most important part of the environmental authorisation process. In the NEMA process there is mention of closure and rehabilitation but no concentrated focus in the detail of what is required. The MPRDA, on the other hand, does focus on the closure and rehabilitation, but mainly on the financial provisions and not on any technical requirements.²¹⁹ Therefore, a detail closure objective with its outcomes and goals must be set. The action plans of how these goals will be achieved must developed with specialist studies to support the action plans to accompany the report. The stakeholder engagement process must be stipulated, which will include the intervals of engagement, how the alignment process with the various local authorities integrated development plans will take place.

The closure plan should distinguish between the following phases: commencement phase, which will be the basic planning with the indication of specific areas that needs protection, the areas identified for stockpiling of topsoil etc.; operational phase where the ongoing rehabilitation requirements should be stipulated; decommissioning phase where the technical requirements for decommissioning should be stipulated; and rehabilitation and monitoring phase stipulating requirements for rehabilitation and post closure monitoring. The cost for final closure and any sudden closure must be calculated, and the methodology of how the financial provision will be provided should be stipulated. This should include that the financial provision will be transferred in situations of mergers or acquisitions.

²¹⁹ See 3.7; See also Hartzler *The liability of historical mine authorisation holders for rehabilitation* for discussion on the legislative measures dealing with rehabilitation.

5. Conclusion and recommendations

The mining sector is one of the bigger contributors to economic development and job creation in South Africa, but can have a severely negative impact on the environment if not managed correctly. The *Constitution* places a duty on government to ensure sustainable development and the obligation to protect the environment for the benefit of the present and future generations. The governance tools such as authorisations are used by government to ensure that the mining industry complies with section 24 of the Constitution. This has resulted in the development of numerous authorisations which are administered by different departments with which the mining sector has to comply.²²⁰ The aim of this study was to determine if, and how, the environmental authorisation processes of the MPRDA, NEMA, NWA, NEM:AQA, NEMWA and the NHRA²²¹ could be aligned to avoid duplication and to make recommendations on how to streamline the process.²²²

The NEMA attempted to align the authorisation processes with the inclusions of section 24K and 24L in chapter 5 of the NEMAA, which deals with the cooperation between different organs of state and the integration of environmental authorisations. The MPRDAA was also drafted to make provision for the abovementioned changes, however the MPRDAA still needs to be signed by the Minister of Mineral Resources before these changes take effect. To date, the authorisations required for the mining industry remain as fragmented as ever.²²³

220 See chapter 3

221 See chapter 2 for discussion of processes.

222 See chapter 1.

223 See chapter 3.

As discussed, the fragmented approach in the authorisation processes by the various governmental institutions does not contribute to sustainable environmental governance. The lack of capacity within the governmental sector contributes further to the unsustainable governance in that the authorisation applications are not getting the attention they deserve and this results in inefficient decision-making. It was also detected that within the current authorisation processes there is the issue of lack of attention in the authorisation requirements to certain activities that have detrimental negative environmental impacts such as mining waste, social impacts, impacts on the sustainability of water resources and detailed closure rehabilitation strategies. However, the main concern is not only the authorisation processes itself, but the implementation and management thereof due to the lack of capacity within government departments to manage the process and to conduct the post-authorisation compliance audits. Therefore, the government sector will have to look at the restructuring of its departments and developing initiatives to retain the key skills that are required to conduct quality assessments of the authorisations within the acceptable time constraints. South Africa has an already a shortage of key expertise to assess the specialist studies that will accompany the applications. The inputs into the applications will be extremely complex and will require the input of specialist who might not be readily available or even exists.

It is proposed that mining authorisations are dealt by one department, such as the DEA. The authorisation process should consist of two specific phases namely the pre-application phase which involves the conducting of the proposed specialist studies to determine the level of impact and therefore to enable the department to make an informed decision as to whether the mine can proceed with the application process. The second phase is the application phase which should be a combination of the S&EIR of NEMA and the EMPR of the MPRDA. This phase should be divided into the scoping phase with a strong focus on the public participation process, and then the combination EIR and the EMPR with the reports to focus on the three

distinct periods of the mining life cycle, the pre-construction and construction phase, operational phase and closure and rehabilitation phase. The DEA must consult with and obtain input from the other departments to ensure that the conditions pertaining to water, biodiversity etc. are aligned. The resultant effect of this would be that the mine receives one authorisation with the input of all the relevant departments with their existing criteria within their current licenses or permits incorporated into one authorisation.

To ensure that environmental governance contributes to sustainable development it is necessary to have one aligned environmental authorisation for the mining industry that encapsulates all the activities within the one environmental authorisation. This will require a complete buy in from all the current governmental departments involved to ensure that the current legislation is reformed into the integration of one environmental authorisation procedure for mining which will take in consideration the broader environmental, economic and social impacts.²²⁴

224 See 4

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