

**The Liability of Mines for the Prevention, Minimisation and
Remediation of Pollution:
A Legal Analysis**

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by

Lana Vorster

22337873

Study Leader: Prof LJ Kotzé

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Filippense 4:13

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Abstract

The mining industry has played a major role in the history and demography of South Africa and has been the dominant contributor to the South African economy for more than a century. However, this contribution has been overemphasised when viewed in relation to mining related environmental impacts. Mining related waste and pollution have the potential to cause a significant undesirable effect on health and the environment because of its inherent toxicological, chemical and physical characteristics. With the possible negative effects of pollution determined, a further concern is that someone needs to be held liable for the loss of use of the resource or damage to human health or well-being. When mining activities negatively affect the health and well-being of people and impacts adversely on the entire array of interests safeguarded by section 24 of the Constitution, it is paramount that mines be held liable for future, present and historic pollution to prevent, minimise and/or remediate pollution.

Environmental law will play a key role in this respect. Environmental laws must, however, be well defined for mining companies to operate within these legal boundaries on a range of issues such as; the mining impact on the environment, the prevention and minimisation of this impact and how mines must rehabilitate the area after mining is completed.

This study investigates the extent to which the South African environmental law regime regulates mines and whether these laws adequately govern the mining industry's liability for present, future as well as historic pollution which is affecting the nation's health and safety.

Keywords: Prevention, minimisation, remediation, mining, pollution, liability.

Opsomming

Die mynbedryf het 'n belangrike rol gespeel in die geskiedenis en demografie van Suid-Afrika en was die dominante bydraer tot die Suid-Afrikaanse ekonomie vir meer as 'n eeu. Tog is hierdie bydrae oorbeklemtoon in verhouding tot mynverwante omgewingsimpakte. Mynverwante afval en besoedeling het die potensiaal om 'n beduidende ongewenste uitwerking op menslike gesondheid en die omgewing te hê. 'n Verdere bron van kommer is die aanspreeklikheid vir skade aan die omgewing sowel as menslike gesondheid en welstand. Wanneer mynbou-aktiwiteite 'n negatiewe impak op die beskermde belange in artikel 24 van die Grondwet het, is dit dus uiters belangrik dat mynbou-aktiwiteite, prosesse en prosedures aanspreeklik gehou word vir toekomstige, huidige en historiese besoedeling. Omgewingswetgewing sal 'n belangrike rol speel in hierdie verband en moet gevolglik goed gedefiniëer word vir mynmaatskappye om te funksioneer binne hierdie wetlike grense. Hierdie studie ondersoek die inhoud en effektiwiteit van die mynbedryf se aanspreeklikheid vir huidige, toekomstige, sowel as historiese besoedeling.

Sleutelwoorde: voorkoming, minimalisering, remediëring, mynbou, besoedeling, aanspreeklikheid.

Abbreviations

AMD	Acid mine drainage
CSIR	Council of Scientific and Industrial Research
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DMR	Department of Mineral Resources
ECA	<i>Environmental Conservation Act 73 of 1989</i>
IP&WM	<i>White Paper on Integrated Pollution and Waste Management</i>
MPRDA	<i>Mineral and Petroleum Resources Development Act 28 of 2002</i>
NELAA	<i>National Environmental Laws Amendment Act 14 of 2009</i>
NEMA	<i>National Environmental Management Act 107 of 1998</i>
NWA	<i>National Water Act 36 of 1998</i>
NWMS	<i>National Waste Management Strategy</i>
PELJ	<i>Potchefstroom Electronic Law Journal</i>
PPP	Polluter pays principle
SAJELP	<i>South African Journal of Environmental Law and Policy</i>
SAPL	<i>SA Public Law</i>
Stell LR	<i>Stellenbosch Law Review</i>

1 Introduction

The mining industry has played a major role in the history and demography of South Africa and has been the dominant contributor to the South African economy for more than a century.¹ However, this contribution has been overemphasised when viewed in relation to mining related environmental impacts.² Mining related waste and pollution have the potential to cause a significant undesirable effect on health and the environment because of the inherent toxicological, chemical and physical characteristics.³ Kotzé and Lubbe⁴ state that in some or most instances, pollution is neither being prevented or minimised, nor is the environment satisfactorily rehabilitated after mining has ceased. When one considers that mining activities negatively affect the environment as well as human health and well-being, it is imperative that mining companies be held liable for present, future, and historic pollution to prevent, minimise and/or remediate pollution.⁵

Environmental law will play a key role in this respect. Environmental laws must, however, be well defined for mining companies to operate within these legal boundaries on a range of issues such as: the mining impact on the environment, the prevention and minimisation of this impact and how mines must rehabilitate the area after mining is completed. South Africa has a fairly comprehensive legal framework dealing with the liability of mines.⁶ The *Constitution of the Republic of*

¹ The sector accounts for roughly one-third of the market capitalisation of the JSE, and continues to act as a magnet for foreign investment in the country. In 2009, according to the Chamber of Mines of South Africa, the industry contributed: 8.8% directly, and another 10% indirectly, to the country's gross domestic product (GDP); over 50% of merchandise exports, if secondary beneficiated mineral exports are counted; and about 1-million jobs (500 000 directly).

² Anon 2010 <http://www.bullion.org.za/Publications/Facts&Figures2009/F&F2009.pdf>. See paragraph 2 of this study for the problem and environmental impact of mining pollution.

³ Van Eeden, Liefferink and Durand 2009 *The Journal for Transdisciplinary Research in Southern Africa Vol 5(1)* 52.

⁴ Kotzé and Lubbe 2009 *SAJELP* 51.

⁵ Kotzé and Du Plessis 2007 *Stell LR* 190.

⁶ Note that the South African legal framework will be outlined and discussed in paragraph 4 below.

South Africa, 1996⁷ is the "supreme law" of the country and any law or conduct that is inconsistent therewith will be subsequently invalid.⁸ Section 24 is the primary constitutional entitlement to environmental claims and forms the constitutional foundation for environmental liability.⁹ This section states that "everyone has the right to an environment that is not harmful to their health and well-being". All government action and legislation as well as individual conduct of mines must thus, as a minimum, comply with the constitutional right to a healthy environment to prevent, minimise and remediate pollution; otherwise they will not survive constitutional muster.¹⁰

In addition to these constitutional provisions, various laws provide for mining liability. For example, section 28 of the *National Environmental Management Act* 107 of 1998¹¹ and section 19 of the *National Water Act* 36 of 1998¹² specify that a party has to take all reasonable measures to prevent pollution or degradation from occurring, continuing, or recurring as a result of its activities for which it is responsible.

Section 43 of the *Mineral and Petroleum Resources Development Act* 28 of 2002¹³ states that the holder of a prospecting right, mining right, retention permit or mining permit remains responsible for any environmental liability, pollution, ecological degradation and the management and sustainable closure thereof,

⁷ Hereafter referred to as the Constitution.

⁸ Section 2 of the Constitution.

⁹ Kotzé and Du Plessis 2007 *Stell LR* 172.

¹⁰ The importance of the environmental right appears from the landmark decision in *Director: Mineral Development, Gauteng Region and Sasol Mining (Pty) Ltd v Save the Vaal Environment* 1999 2 SA 709 (SCA) 719 (hereafter referred to as the *Save the Vaal* - case), where the Court indicated that "our Constitution, by including environmental rights as fundamental justifiable human rights, by necessary implication requires that environmental considerations be accorded appropriate recognition."

¹¹ Hereafter referred to as NEMA.

¹² Hereafter referred to as the NWA.

¹³ Hereafter referred to as the MPRDA.

until the Minister of Minerals and Energy¹⁴ has issued a closure certificate in terms of this act to the holder concerned.

In light of the foregoing, this dissertation asks the following central question: how does the current South African legal framework provide for liability provisions regulating prevention, minimisation and remediation of pollution caused by mines and are they adequate?¹⁵ The study is based on a literature review which includes a review of statutes and other legislation, case law, textbooks and articles as well as electronic material obtained from various internet sites; in other words primary and secondary sources of law. This dissertation acknowledges that mines have an impact on many environmental aspects and this could trigger a whole array of environmental legislation governing environmental liability. However, due to the scope of this study its focus will only be on the Constitution, NEMA, NWA, MPRDA, and the *National Environmental Management: Waste Act* 59 of 2008.¹⁶

This study investigates the extent to which the South African environmental law regime regulates mines and whether these laws adequately govern the mining industry's liability for present, future as well as historic pollution which is affecting the nation's health and safety. In doing so, it first provides an overview of the problem and environmental impact of mining pollution.¹⁷ Secondly, definitions of key concepts, as derived from legislation, is examined, compared and contrasted.¹⁸ With this background and context established, the study examines and analyses each of the relevant laws and provisions regulating pollution

¹⁴ Cognisance must be had for the fact that the MPRDA refers to the Minister of Minerals and Energy, however the current Minister is referred to as the Minister of Mineral Resources.

¹⁵ Note that this study will not focus on issues pertaining to health and safety, and will only focus on environmental issues in terms of the pollution caused by the mining industry.

¹⁶ Hereafter referred to as the Waste Act. It is not the purpose of this chapter to venture into the contents of the common law, due to the focussed study area. For more information see, in general, Currie and De Waal *The Bill of Rights Handbook* 521-530; Van Eeden, Lieferink and Durand 2009 *The Journal for Transdisciplinary Research in Southern Africa* Vol 5(1) 51-71.

¹⁷ See paragraph 2 hereafter.

¹⁸ See paragraph 3 hereafter.

prevention, minimisation and remediation to determine if mining pollution is effectively being regulated.¹⁹ To conclude, some observations on the current liability regime as derived from the discussed laws are provided.²⁰

2 The problem and environmental impact of mining pollution

Mining has detrimentally impacted on the environment since mining activities first commenced and the “problem” of mining pollution is, in fact, not a new phenomenon.²¹

...the fields are devastated by mining operations... further, when the ores are washed, the water which has been used poisons the brooks and streams, and either destroys fish or drives them away. Therefore the inhabitants of these regions, on account of the devastation of their fields, woods, groves, brooks and rivers, find great difficulty in procuring the necessaries of life... Thus it is said, it is clear to all that there is greater detriment from mining than the values of the metals which mining produces.

The occurrence of minerals in many parts of South Africa has led to the rapid growth of mining activities.²² Worldwide, South Africa is considered one of the most mineral rich regions, containing more than half of the world reserves of manganese, chromium and platinum group metals, and 40% or more of the reserves of vanadium, gold and vermiculite.²³ As a result, it has attracted the mining industry, which is a significant driver of the South African economy.²⁴ Yet, mining and its related operations have substantial environmental impacts, causing irreversible damage to the environment due to pollution and waste generated, as well as myriad socio-economic impacts.²⁵ During the apartheid years, an alliance emerged between the gold mining industry and the Government whereby revenues from the mining sector sustained the country in

¹⁹ See paragraphs 4 hereafter.

²⁰ See paragraphs 5 hereafter.

²¹ Georgius Agricola “De Re Metallica” 1556. Interesting to note that mining has evidently been a concern even in ancient times.

²² Wells *et al* “Terrestrial Minerals” 542.

²³ McLean and Carrick 2007 *SAJELP* 188.

²⁴ McLean and Carrick 2007 *SAJELP* 188.

²⁵ This dissertation however only focuses on the environmental impacts of mining.

the face of international sanctions. The significance of this historic aspect of the mining industry is that mining companies have not always been held responsible and liable for the historical consequences of their activities.²⁶

The environmental impacts of mining can be categorised according to the type of pollution or environmental degradation which may occur.²⁷ Mining development takes place over a number of phases, with activities associated with each mining phase possessing the potential to cause pollution and environmental degradation.²⁸ The operational phase of mining accounts for most of the environmental impacts of mining development and contributes to a number of adverse effects including the main types of pollution e.g. water pollution, air pollution and soil pollution.²⁹

²⁶ Turton *Tooth Fairy Project 1*. Note, for example, the current acid mine drainage (hereafter referred to as AMD) problem in South Africa. Although mines can be held liable for historic pollution in terms of NEMA; in most instances the mine does not exist anymore, the current owner cannot be identified or located, or the mine has been liquidated. In these instances it is impossible to recover costs for rehabilitation from the actual culprit.

²⁷ Glazewski *Environmental Law in South Africa* 457.

²⁸ Included in these mining activities are exploration; operational activities; smelting and refining; as well as mine closure and post-operational waste management. Most of the environmental impacts associated with mining exploration occur at a much smaller scale than mining operational activities. The cumulative effects of exploration activities at multiple sites within a specific area have the potential to change aquatic and terrestrial ecosystem health. The general pollution impacts include local spillage and leakage of fuels, oils and drilling fluids resulting in site and vegetation contamination. Potential surface water pollution may result from waste water, sewage disposal on site and waste rock dumping.

DEAT 1999 www.environment.gov.za/soer/nsoer/drivers/general/Mining.pdf. Contamination of soils, watercourses and food chains caused by leaching and transportation of pollutants from mine extraction, stockpile and waste sites are some of the primary environmental effects associated with smelting and refining processes. Combustion or smelting (forms of mineral heating) cause contaminated water, noxious gases and fine dust and injects heavy metal vapours into the atmosphere. See in general Booth "Pollution" 227-252. Environmental impacts associated with mine closure are landscape scarring in the form of unrehabilitated waste rock dumps, mine tailings dams, discarded dumps and old shafts, as well as continuing environmental damage from polluted water (including AMD) and the disposal of contaminated solid waste. Some of the mine related negative impacts which continue after mine closure include: loss or degradation of groundwater; pollution of surface water by sediments or salts and air pollution from dust or toxic gases. Johnson, Cooke and Stevenson "Revegetation of Metalliferous Wastes and Land after Metal Mining" 31-48.

²⁹ DEAT 1999 www.environment.gov.za/soer/nsoer/drivers/general/Mining.pdf.

Mining has a serious impact on the country's scarce water resources.³⁰ Mining activities disturb established drainage patterns, often causing water logging and erosion.³¹ Furthermore, the dewatering of mines and the placement of slimes dams may cause sinkholes. Karstification occurs when carbonate rock dissolves if exposed to acids such as those contained in acid mine drainage (AMD)³² or even naturally occurring acids. The result of the chemical decay is the formation of underground solution cavities, caves, sinkholes, and dolines.³³ In fact, the major cause of costly environmental and socio-economic impacts in South Africa is AMD.³⁴ The detrimental effect of AMD lies in the environmental impact of the elevated levels of heavy metals, which are often toxic to fauna, flora and human health.³⁵ Parallel to AMD and with further implications to health and the environment are sulphates,³⁶ metals,³⁷ radioactivity³⁸ and biodiversity.³⁹

³⁰ As a relevant example of water pollution caused by mining, the court in *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Co Ltd and Others* 2006 5 SA 333 (W) 337A, encountered water pollution caused by mining by means of water coming into contact with mined-out reefs. The cause of the water pollution is because the mined-out reefs contain iron pyrite which oxidises when exposed to air and water, causing the total dissolved solids content of the water to rise. This leads to groundwater with low pH and high sulphate or heavy metal content.

³¹ Glazewski *Environmental Law in South Africa* 458.

³² Mine effluent containing bimetals, acid, and sulphates issues from the run-off from slimes dams and rock dumps enter the surface water streams and groundwater. Van Eeden, Liefferink and Durand 2009 *The Journal for Transdisciplinary Research in Southern Africa Vol 5(1)* 53. Also see in general Brink *et al* 1990 *South African Journal of Science* 434-440.

³⁴ Van Eeden, Liefferink and Durand 2009 *The Journal for Transdisciplinary Research in Southern Africa Vol 5(1)* 54.

³⁵ Wells *et al* "Terrestrial Minerals" 535-536.

³⁶ High levels of sulphate are one of the characteristics of AMD. If humans ingest more than 600 mg/L of sulphate, it may lead to vomiting and diarrhoea.

³⁷ Metals contained in AMD; such as aluminium, iron, nickel, etc.; may be toxic and is linked to cancer, necrosis, tumours and even death.

³⁸ Some of the metals contained in AMD are radioactive in addition to being toxic. Plants absorb these metals readily through their roots, and from there the metals are passed on into the rest of the food chain.

³⁹ AMD leads to the decimation of aquatic life in the water bodies into which mine effluent is discharged. Metals and other pollutants are accumulated in organisms during the food chain. During the process of bio-accumulation, some toxins become more concentrated as they travel up the food chain and have a detrimental effect on higher tropic levels. Van Eeden, Liefferink and Durand 2009 *The Journal for Transdisciplinary Research in Southern Africa Vol 5(1)* 55-57.

Operational activities also add to changes to the local groundwater dynamics, quality and quantity. Changes in groundwater include aquifer dewatering, which occurs as a result of mines requiring large volumes of water of an acceptable quality to ensure safe and economically viable mining operations. The environmental effects of dewatering include lowering of water-tables, the formation of sinkholes and collapsing.⁴⁰

Dust from uncovered mine dumps causes visual pollution, inconvenience and discomfort, and could have serious health implications.⁴¹ Unconsolidated discarded dumps can also cause spontaneous combustion. Coal, coal discard and other carbonaceous material produce heat when exposed to air. If they are put in a heap which is porous enough to let air in but also large enough to prevent the heat escaping, the heat builds up and the material ignites on its own. Localised acid rain⁴² occurs as a result of rain washing these gases from the air.⁴³

Furthermore, mining activities and the waste produced are unmistakable contributors to soil degradation. Some of the main factors responsible for environmental degradation include: oxidation of iron pyrites contained in mined materials; the presence of toxic substances and other pollutants in minerals and groundwater; high concentrations of dissolved and suspended solids in mine effluents; toxic reagents used in metallurgical processes; and erosion from residue dumps and slime dams. Soil erosion, compaction, source of dust pollution and loss of high potential agricultural land are only some of the negative impacts associated with mining.⁴⁴

⁴⁰ DEAT 1999 www.environment.gov.za/soer/nsoer/drivers/general/Mining.pdf and, in general, Brink *et al* 1990 *South African Journal of Science* 434-440.

⁴¹ DEAT 1999 www.environment.gov.za/soer/nsoer/drivers/general/Mining.pdf and Glazewski *Environmental Law in South Africa* 458.

⁴² Sulphur dioxide produced through the burning of coal, causes acid rain and respiratory problems.

⁴³ Wells *et al* "Terrestrial Minerals" 539-540.

⁴⁴ Verster *et al* "Soil" 311.

The devastating effects of mining on the environment were recently highlighted by the courts in various judgments, including, for example, *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Co Ltd and Others*,⁴⁵ *Kebble v Minister of Water Affairs*⁴⁶ and *Harmony Gold Mines v Regional Director: Free State, Department of Water Affairs and Forestry*.⁴⁷ The issue concerned a situation where underground water would, if not raised to the surface and treated appropriately, become polluted and this would in turn result in the pollution of valuable water resources. Furthermore, the harmful effects of mining activities, and more specific air pollution, have been illustrated in the judgment of *Bareki NO v Gencor Ltd*,⁴⁸ where a mine was not rehabilitated and asbestos dumps, a beneficiation plant and a haul road remained on the land. Mining activities relating to asbestos, negatively affect the health of people (asbestosis) and the natural environment, due to asbestos fibres that have been dislodged, exposed and relocated due to mining operations.⁴⁹ Moreover, the court in *Save the Vaal* took judicial notice of the fact that mining is inherently bad for the environment.⁵⁰

⁴⁵ *Minister of Water Affairs and Forestry v Stilfontein Gold Mining Co Ltd and Others* 2006 5 SA 333 (W) (hereafter referred to as the *Stilfontein-case*). The mining activities of *Stilfontein* had resulted in a situation where underground water would, if not raised to the surface and treated appropriately, become polluted and this would in turn result in the pollution of valuable water resources. *Stilfontein* had under its control a shaft which required the daily pumping of water from the shaft to the surface. Failure to manage this water would not only lead to pollution but would have disastrous effects on other mines in the area; would result in serious flooding of the shafts operated by an adjacent mine with the consequential loss of property and potentially the lives of miners working in these mines.

⁴⁶ *Kebble v Minister of Water Affairs* 2007 SCA 111 (hereafter referred to as the *Kebble-case*).

⁴⁷ *Harmony Gold Mines v Regional Director: Free State, Department of Water Affairs and Forestry* 2006 SCA 65 (hereafter referred to as the *Harmony-case*). The applicant sought to challenge a statutory directive issued under the NWA which compelled it, *inter alia*, to extract large volumes of groundwater from its mine to prevent water pollution. Several adjacent mining companies, whose mines were linked to that of the applicant through a series of underground tunnels, were issued the same directive. However, some of these mining companies had gone into liquidation and accordingly the applicant was directed to contribute to the costs of extracting water from these adjacent mines which it did not own.

⁴⁸ *Bareki NO v Gencor Ltd* 2006 1 SA 432 (T) (hereafter referred to as the *Bareki-case*).

⁴⁹ Kotzé and Du Plessis 2007 *Stell LR* 189.

⁵⁰ Kotzé and Lubbe 2009 *SAJELP* 50. The court in this regard acknowledged the enormous damage mining can do to the environment and ecological systems as well as weighing the future needs of our generation against the present need for development.

The process of mining is, by nature, detrimental to the environment and the Courts have highlighted this as a point of major concern.⁵¹ Not only is it a form of unsustainable utilisation of natural resources, the process of extracting minerals creates large scale generation of waste and pollution. If not managed and effectively governed, mining can leave a path of destruction in its wake.

In understanding the liability regime with relation to mining pollution, one must also consider the pollution problem in general. Thus, while the possible negative effects of pollution have been explained, a further concern is liability for past, present and future polluting activities. Before the liability regime is discussed the study will, firstly, critically evaluate several features, aspects and key concepts of the liability regime as derived from legislation.⁵²

3 Aspects of environmental liability for mines

Legal liability regimes create adherence to environmental principles such as precaution, prevention, duty of care and the polluter pays, as well as laws. The principles serve as binding guidelines in respect to the liability regime and because these principles and laws are binding, they are arguably also enforceable and justiciable. The existence of a liability regime may lead to a cautious approach in the activities, processes and daily operations of mining industries and liability regimes serve the purpose of prevention to avert imposition of liability. Secondly, a liability regime advocates compliance with

⁵¹ The *Stilfontein*-case illustrated this point, *inter alia*, on the judgement concerning urgency. The respondents contended that the matter (the directive issued to manage the water resources) was not urgent and ought to be struck off the roll (338F-338H). It can be derived from the court's dismissal of the respondent's defence that the court appreciated the immediate need for a remedy to address a looming and potentially disastrous environmental incident (340A-340D). The court in the *Harmony*-case referred to section 24 of the Constitution when interpreting section 19 of the NWA. Kotzé and Lubbe finds that the mere reference to the Constitutional environmental right may be an indication of the court's appreciation of the right and may also suggest that the pollution caused by mining activities can infringe the interests guaranteed by the environmental right. Kotzé and Lubbe 2009 *SAJELP* 64.

⁵² Defining key concepts is crucial because correct application dictates which activities are subject to the liability regime.

environmental regulatory measures and as such serves to enforce environmental laws and the achievement of the objectives of laws (or their purpose). Thirdly, assurance that redress is provided for those instances where unlawful action causes injury and/or damage to the environment and the public, is confirmed by a liability regime. In this instance, a liability regime serves a reparative function which shifts the detrimental costs of harmful conduct in whole or in part from the victim to the polluter.⁵³

Identifying the exact extent of responsibilities and corresponding potential liabilities in respect of mining, requires not only an assessment of relevant legislative provisions, but also the dissection of certain relevant concepts for the sake of conceptual and theoretical clarity and uniform interpretation.⁵⁴

3.1 Environmental Principles

The national environmental management principles contained in section 2 of NEMA is the corner stone of environmental governance and liability in South Africa and is based on the foundation of sustainable development.⁵⁵ These principles all apply directly to mines by virtue of the MPRDA which provides that regard must be had to the NEMA principles by stipulating that the principles set out in section 2 of NEMA:⁵⁶

- a) apply to all prospecting and mining operations, as the case may be, and any matter or activity relating to such operation; and
- b) serve as a guideline for the interpretation, administration and implementation of the environmental requirements of this Act [MPRDA].

Section 37(2) of the MPRDA further provides that:

⁵³ Feris "Who is to blame? Liability and Redress Related to GMOs" 486.

⁵⁴ Note that the liability regime for past, present and future polluting activities of mining industries, with reference to pollution prevention, minimisation and remediation, is the focus of this study.

⁵⁵ Glazewski *Environmental Law in South Africa* 480. Kotzé and Du Plessis 2007 *Stell LR* 177.

⁵⁶ Section 37(1) of the MPRDA.

Any prospecting or mining operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of prospecting and mining projects in order to ensure that exploitation of mineral resources serves present and future generations.

By virtue of section 37(1) of the MPRDA, these principles apply to the private sector⁵⁷ and therefore the mining industry must adopt a risk-averse and cautious approach; prevent negative impacts or effects of their activities on the health and well-being of people and the environment; and pay for all their pollution since they remain liable for the effects of their policies, projects, programmes, products, processes, services or activities throughout their life cycles.⁵⁸ The overall functions of NEMA safeguarding against, among others, pollution are supported by the environmental principles. When any organ of State takes a decision in terms of NEMA or any other law concerned with environmental protection, the principles must serve as guidelines. More specifically, the principles should guide the interpretation and implementation of the liability regime of NEMA and any other law concerned with environmental protection including mining related legislation.⁵⁹ All the principles contained in NEMA have a direct bearing on the mining sector.⁶⁰ The following principles are particularly important and are discussed below.⁶¹

⁵⁷ Section 2 of NEMA states that the principles only apply to the actions of organs of state. Kotzé and Du Plessis suggest that these principles also apply to non-state actors such as the mining industry, given the aim of the principles as well as the possible horizontal working of section 24 of the Constitution. Arguably, as long as the actions of the mining industry significantly affect the environment, the principles will apply regardless of whether the actor is an organ of state. Kotzé and Du Plessis 2007 *Stell LR* 177.

⁵⁸ Kotzé and Du Plessis 2007 *Stell LR* 179.

⁵⁹ Sections 2(c) and (e) of NEMA.

⁶⁰ There are 18 principles that cover a wide spectrum of aspects. These are echoed in the eight sub-principles of sustainable development referred to in subsection 4(a), as well as the remaining 17 principles, namely: integrated environmental management; environmental justice; equitable access to environmental resources, benefits and services; environmental responsibility throughout the life cycle of the project, etc.; integrated environmental governance; decisions must take into account the interests, needs and values of all interested and affected parties; environmental education; social, economic and environmental impacts of activities; protection of workers' rights; transparent decision making and access to information; intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment; effective conflict resolution procedures; public trust doctrine; polluter pays principle;

3.1.1 Polluter pays principle

The polluter pays principle (PPP) is reflected in the provision that:⁶²

The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.

The adverse cost of industrial production, pollution and waste is usually borne by society at large and this is referred to as “externalities” in that the negative costs of producing a product are not built into the product cost. The core of the PPP is that the costs of pollution should be borne by the generator of pollution or the person who causes pollution rather than society at large and thus the PPP seeks to “internalise” these costs.⁶³ In essence, the PPP means that “polluters and users of natural resources (should) bear the full environmental and social costs of their activities”.⁶⁴ The PPP can also be described as an economic principle that requires the polluter (the mining industry in this instance) to be held liable to compensate or pay for pollution prevention, minimisation and remediation. Therefore, the crux of the principle is to impose economic obligations when environmental damage is caused by a polluter and this is achieved by setting minimum rules on liability for environmental damage.⁶⁵

recognition of women and youth in environmental management; specific attention to sensitive, vulnerable, highly dynamic or stressed ecosystems; and global and international responsibilities.

⁶¹ Note that, the “duty of care” principle forms an integral part of the principles and will be discussed under the relevant legislation dealing with the concept.

⁶² Section 2(4)(p) of NEMA.

⁶³ Glazewski *Environmental Law in South Africa* 19.

⁶⁴ Hunter, Salzman and Zaelke *International Environmental Law and Policy* 412.

⁶⁵ Liability regimes are based, amongst others, on the PPP and essentially aim to establish socially responsible behaviour by creating legal liability for damage to natural resources, environmental damage, property damage, damage to human health and non-compliance with environmental laws and regulations. Kotzé and Du Plessis 2007 *Stell LR* 180.

The PPP has been adopted in South Africa in a number of policy documents including the *White Paper on Environmental Management in South Africa* which states that:⁶⁶

Those responsible for environmental damage must pay the repair costs both to the environment and human health, and the costs of preventive measures to reduce or prevent further pollution and environmental damage.

Another policy document, the *White Paper on a Minerals and Mining Policy for South Africa*, acknowledges the PPP as playing a key role in regulating the mining industry, by stating that:⁶⁷

The polluter-pays principle will be applied in the regulation and enforcement of environmental management. The mining entrepreneur will be responsible for all costs pertaining to the impact of the operation on the environment. Where for reasons such as the demise or incapacity of a mining entrepreneur, no responsible person exists or can be identified to address pollution emanating from past mining operations, the State may accept responsibility or co-responsibility for the rehabilitation required.⁶⁸ Government may require that any person benefiting from such rehabilitation should contribute to the cost involved in such proportions as may be negotiated.⁶⁹

In short, those who pollute must pay to remedy the effects of that pollution and compensate those, as well as the environment, who suffer the negative consequences of pollution.⁷⁰ The principle can thus hold the mining industry financially liable for its activities by establishing liability for environmental damage, internalising the costs of pollution, and also assessing and recovering historical damages in an equitable way.⁷¹

⁶⁶ Chapter 3 of *White Paper on Environmental Management Policy for South Africa* GN 749 in GG 18894 of 15 May 1998.

⁶⁷ *Minerals and Mining Policy for South Africa, Department of Minerals and Energy* GN 2359 in GG 19344 of 20 October 1998 at par 4.4 (iii).

⁶⁸ Where the State accepts financial responsibility for the costs of mining pollution, the PPP is gainsaid because these costs are then once again internalised to the State and consequently the tax paying public.

⁶⁹ The policy applies the PPP to past acts of pollution and liability arising therefrom.

⁷⁰ Kotzé and Du Plessis 2007 *Stell LR* 180.

⁷¹ For more information on the PPP consult Beyerlin "Policies, Principles, and Rules" 441 and Sands *Principles of International Environmental Law* 279-876.

3.1.2 Precautionary principle

The Constitutional Court in *Fuel Retailers Association of Southern Africa v Director General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province*⁷² affirmed the precautionary approach to environmental governance and held this to be especially important when considering the cumulative impacts of a development on the environment and socio-economic conditions.⁷³ The precautionary principle provides guidance during development or when anything occurs which might harm the environment and where there is scientific uncertainty.⁷⁴

NEMA stipulates and requires “a risk averse and cautious approach” to be applied and that decision-makers should take “into account the limits of current knowledge about the consequences of decisions and actions”.⁷⁵

This approach is also acknowledged in the *White Paper on a Minerals and Mining Policy for South Africa* in that:⁷⁶

...during decision-making a risk averse and cautious approach that recognises the limits of current environmental management expertise will be adopted and where there is uncertainty, action is required to limit the risk.

The precautionary principle requires the mining industry to take adequate precautionary measures to safeguard against contamination, pollution or degradation of the environment and where there is uncertainty, the action taken should be to limit the risk to the environment.⁷⁷

⁷² *Fuel Retailers Association of Southern Africa v Director General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province* 2007 6 SA 4 (CC) (hereafter referred to as the *Fuel Retailers-* case).

⁷³ *Fuel Retailers-*case 98-99.

⁷⁴ Glazewski *Environmental Law in South Africa* 18.

⁷⁵ Section 2(4)(a)(vii) of NEMA.

⁷⁶ *Minerals and Mining Policy for South Africa, Department of Minerals and Energy* GN 2359 in GG 19344 of 20 October 1998 at par 4.4 (ii).

⁷⁷ Also see in this regard Beyerlin “Policies, Principles, and Rules” 440-441; Wiener “Precaution” 598-612; and Sands *Principles of International Environmental Law* 266-279.

3.1.3 Preventive principle

The preventive principle is reflected in the concept that the disturbance of ecosystems and loss of biological diversity are to be "...avoided, or...minimised and remedied."⁷⁸ Furthermore, the principle prescribes that the disturbance of the landscape and the nation's cultural heritage is to be avoided, and where it cannot be altogether avoided, must be minimised and remedied.⁷⁹ Any negative impacts on the environment and on people's environmental rights should also be anticipated and prevented, and where they cannot be altogether prevented they should be minimised and remedied.⁸⁰

The principle aims to minimise environmental damage by requiring that action be taken at an early stage of the process, and if possible, before such damage actually occurs.⁸¹ Broadly stated, it prohibits activity which causes or may cause damage to the environment in violation of the duty of care established under environmental law.⁸² It is described as being of:⁸³

overriding importance in every effective environmental policy, since it allows action to be taken to protect the environment at an earlier stage. It is no longer primarily a question of repairing damage after it has occurred.

The preventive principle bestows on the mining industry an obligation to take steps to avoid causing certain types of damage to the environment, including the environment beyond their own territory or property.⁸⁴

3.1.4 Cradle-to-grave

⁷⁸ Section 2(4)(a)(ii) of NEMA.

⁷⁹ Section 2(4)(a)(iii) of NEMA.

⁸⁰ Section 2(4)(a)(viii) of NEMA.

⁸¹ Glazewski *Environmental Law in South Africa* 18.

⁸² Sands *Principles of International Environmental Law* 246-249.

⁸³ Sands *Principles of International Environmental Law* 247.

⁸⁴ See for example the *Harmony*-case where the court directed the applicant to contribute to the costs of extracting large volumes of groundwater from adjacent mines which it did not own, to prevent water pollution.

The narrow approach to pollution and waste control has shifted from only focusing on the depletion of natural resources to now focusing on the adverse polluting impacts of mining processes, product use and product waste.⁸⁵ There is a need to change current perspectives from “end-of-pipe”⁸⁶ solutions by taking a broader and integrated approach to mining operations that explicitly considers the environmental implications through the entire life cycle from cradle-to-grave.⁸⁷

A cradle-to-grave stewardship perspective indicates the adoption of a comprehensive ecological view of the impacts of a process on the environment, commencing with research, development and design through the extraction and use of raw materials, production and processing, storage, distribution and use, to the final disposal of the product and the waste generated as a by-product. The integrated consideration of all the environmental impacts forms part of this cycle.⁸⁸

The “cradle-to-grave” principle espouses liability as a result of, or caused by, policies, programmes, projects, products, processes, services and activities. Given the general purpose of NEMA, together with the other sustainability principles, this legal liability may include to rectify, remedy or compensate for environmental damage or degradation.⁸⁹ The principle also recognises that environmental impacts, pollution or degradation may be associated with the entire life cycle of a mine, that is, from the identification, exploration phase through project planning, implementation, operations and post-operational closure, decommissioning and rehabilitation.⁹⁰ Thus, the mining industry will

⁸⁵ Beaumont, Pedersen and Whitaker *Managing the Environment* 143-144.

⁸⁶ To remove harmful pollutants in the waste streams coming out of a plant after it has been created.

⁸⁷ Beaumont, Pedersen and Whitaker *Managing the Environment* 143-144.

⁸⁸ Beaumont, Pedersen and Whitaker *Managing the Environment* 143-145.

⁸⁹ Kotzé and Du Plessis 2007 *Stell LR* 183. A typical example can be found in the *Bareki*-case, where asbestos leads to environmental pollution and damages the health of people, or where an unrehabilitated asbestos dump may cause injury to someone crossing it.

⁹⁰ Kotzé and Du Plessis 2007 *Stell LR* 184.

remain liable for the damage or degradation caused by its activities throughout the life cycle of the mining operations until decommissioning and rehabilitation.

3.2 Waste and mining waste

Currently, there are varying definitions and interpretations of waste and in particular, mining waste. A discussion on liability for damage caused by pollution first requires a definition of waste, as waste is one of the primary causes of mining pollution and anomalies with respect to interpretative differences may significantly affect the operation of any legal liability regime. According to Kidd,⁹¹ waste is incorporated within the concept of “pollution”. Therefore, unless it can be re-used, waste is defined as having the ability to cause pollution.⁹² In order to understand the extent of liability for environmental damage caused by waste in South Africa, it is essential to firstly understand what is meant by “waste” and “mining waste”.⁹³ Until the final repeal of its relevant sections by the Waste Act, the primary legislation defining waste was the *Environmental Conservation Act* 73 of 1989.⁹⁴

Section 1 of the ECA defined “waste” as:

An undesirable or superfluous by-product, emission, residue or remainder of any process or activity, any matter, gaseous, liquid or solid or any combination thereof, which:

- a) is discharged by any person; or
- b) is accumulated and stored by any person with the purpose of eventually discharging it with or without prior treatment connected with the discharging thereof; or
- c) is stored by any person with the purpose of recycling, re-using or extracting a usable product from such matter.

⁹¹ Kidd defines “waste” as that which we do not want or what we fail to use, with the provision that “failure to use” includes “failure to use for its proper purpose”. He further states that waste and pollution are, in many cases, synonymous, but pollution need not necessarily be caused by waste. Kidd *Environmental Law: A South African Guide* 121.

⁹² Campbell and Craig *Organisations and The Business Environment* 269.

⁹³ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse* 1.

⁹⁴ Hereafter referred to as the ECA. Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse* 1.

The ECA waste definition was supplemented by GN R1986⁹⁵ which excluded certain activities from the definition of waste. In particular any minerals, tailings, waste-rock or slimes produced by or resulting from activities at a mine or works, was excluded. Thus, the ECA did not contain a definition for waste generated by the mining sector.⁹⁶

Waste is furthermore defined in the NWA as:⁹⁷

Any solid material or material that is suspended, dissolved or transported in water (including sediment) and which is spilled or deposited on land or into a water resource in such volume, composition or manner as to cause, or to be reasonably likely to cause, the water resource to be polluted.

The NWA will apply in water resource-related cases where the Waste Act is not applicable. Complimentary to the NWA is GN R704,⁹⁸ which regulates the use of water for mining and related activities aimed at the protection of water resources.⁹⁹ Apart from the NWA, considering the regulatory control of various types of waste, waste management in South Africa is based on the principles of the *White Paper on Integrated Pollution and Waste Management (IP&WM)* and the *National Waste Management Strategy (NWMS)* published by the DEAT in 1999 and 2000 respectively and the subsequent enactment of the new Waste Act. Young¹⁰⁰ is of opinion that the introduction of the Waste Act into the South African legislative framework will ultimately shift the legal viewpoint of waste

⁹⁵ GN R1986 in GG 12703 of 24 August 1990.

⁹⁶ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse* 1. Note that the ECA is not applicable anymore and is only discussed as part of a historical reflection to illustrate that mining waste has been systematically excluded from the regulatory ambits of South Africa's most important environmental statutes.

⁹⁷ Section 1 of the NWA.

⁹⁸ GN R704 in GG 20119 of 4 June 1999.

⁹⁹ While not giving a direct definition for "mining waste", these regulations directly apply the NWA to mining related water usage. The regulations prescribe the measures to be taken by mines to prevent the pollution of water resources. Included in the regulations, but not limited to, are the following: restrictions on the location where mining activities may take place from the perspective that harm to a watercourse, estuary or water resource must be avoided; measures for the separation and separate disposal of clean and dirty water; requirements that water containing waste or any substance likely to cause water pollution must be prevented from entering any water resource; as well as requirements that all water used in the mining process should be recycled.

¹⁰⁰ Young *Occupational Risk Management* 9.

management, with greater regulatory focus being afforded to all aspects of waste management throughout the waste cycle. The NWMS¹⁰¹ acknowledges the importance of waste avoidance and reduction due to the significant environmental impact of this waste, and the potential harmful consequences for human health. However, certain classes of hazardous waste¹⁰² are not regulated by the Waste Act. Section 4(1)(b) specifically excludes residue deposits¹⁰³ and stockpiles¹⁰⁴ from the scope of the Act. The NWMS, furthermore, admits that “residue stockpiles” constitute a heterogeneous category of actual or potential waste substances.¹⁰⁵ It is noted that no further explanation is given for what this varied category entails and the only explanation seems to be that the DEA will engage with the DMR to determine if a memorandum of understanding is

¹⁰¹ In accordance with the Waste Act, the Department of Environmental Affairs had to prepare the first Draft National Waste Management Strategy. *National Environmental Management: Waste Act: Draft National Waste Management Strategy* GN R575 in GG 3327 of 8 June 2010.

¹⁰² As stated, mining accounts for 87% of waste generated in South Africa and an estimated 1000 000 ton of hazardous waste forms part thereof. Oelofse and Musee *Hazardous Waste Management and Emerging Waste Streams: A Consideration of Key Emerging Issues that may Impact the State of the Environment* 1. Section 2(1) of the *Hazardous Substances Act* 15 of 1973, defines hazardous waste as any substance that may cause injury, ill health or death to human beings because of its toxic, corrosive, irritant, strongly flammable nature or because it generates pressure through decomposition, heat or other means. GN R777 in GG 32439 of 24 July 2009, accompanying the Waste Act, defines hazardous waste as “any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.” Hazardous waste has the potential, even in low concentrations, to have a significant adverse effect on public health and the environment because of its inherent toxicological, chemical and physical characteristics. Waste minimisation and re-use are fundamental concerns relating to hazardous waste and the international tendency is to focus on waste minimisation at source, and the recovery, re-use and recycling of unavoidable waste with disposal at landfill as a last resort. See in general Bredenhann “Waste Management Legislation” (Unpublished conference seminar, copy on file with author); and Oelofse and Musee *Hazardous Waste Management and Emerging Waste Streams: A Consideration of Key Emerging Issues that may Impact the State of the Environment* 1-2.

¹⁰³ “Residue deposit” is defined in section 1 of the MPRDA as “any residue stockpile remaining at the termination, cancellation or expiry of a prospecting right, mining right, mining permit, exploration right, production right or an older right.”

¹⁰⁴ “Residue stockpile” is defined in section 1 of the MPRDA as “any debris, discard, tailings, slimes, screening, 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.”

¹⁰⁵ *National Environmental Management: Waste Act: Draft National Waste Management Strategy* GN R575 in GG 3327 of 8 June 2010 at paragraph 4.4.

possible to “classify” residue stockpiles.¹⁰⁶ What is derived from the latter is that while the authorities ponder whether and when residue stockpiles should be classified, uncertainty remains as to which part of mining waste is regulated under the Waste Act.

“Waste” as defined by the Waste Act means any substance, whether or not that substance can be reduced, re-used, recycled and recovered:¹⁰⁷

- a) That is surplus, unwanted, rejected, discarded, abandoned or disposed of;
- b) Which the generator has no further use of for the purposes of production;
- c) That must be treated or disposed of; or
- d) That is identified as a waste by the Minister by notice in the Gazette,
- e) And includes waste generated by the mining, medical or other sector,

Although the Waste Act mentions “waste generated by the mining sector”, it is already mentioned that residue stockpiles and deposits are specifically excluded. A general assumption exists in South Africa that mining waste refers to “residue stockpiles”.¹⁰⁸ Mining waste can also comprise of non-mineral waste and the latter is described as ancillary materials that support mining activities and includes petrochemicals, process equipment and machinery, scrap metal, construction rubble, office and domestic rubbish.¹⁰⁹ If mining waste is labelled as “residue stockpiles” and since residue stockpiles are not defined as waste, it can be argued that the only “mining waste” regulated by the Waste Act includes ancillary waste to mining activities. When one considers that the mining industry constitutes an average of 87% of waste generated in South Africa annually, it is disappointing to note that the Waste Act does not cover the majority of waste generated by the mining sector. This stringent liability is thus only applied to 20% of waste generated in South Africa, being lost to the actual culprit. Unprotected “residue stockpiles” can cause environmental pollution and it is hoped that, by defining “residue stockpiles” as waste, it will assist in promoting reuse where

¹⁰⁶ *National Environmental Management: Waste Act: Draft National Waste Management Strategy* GN R575 in GG 3327 of 8 June 2010 at paragraph 4.4.

¹⁰⁷ Section 1 of the Waste Act.

¹⁰⁸ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse* 1.

¹⁰⁹ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse* 1.

possible; and forcing the inclusion of environmental externalities into the cost of mining, to ensure that waste is sustainably managed.

The MPRDA is also quite vague on the issue of mining waste and in particular the term “waste”, referring only to “residue stockpiles” and “residue deposits” which need to be managed. Waste, and particularly mining waste, is not specifically defined or addressed in the MPRDA.¹¹⁰

While there are legal definitions for “waste” in South Africa, there is currently no legal definition and thus possibly no proper regulation for “mining waste”. The vagueness surrounding the definition of “waste” and “mining waste” in the national legislation, results in a lack of clarity and misperception with regard to the management and liability of this waste stream.¹¹¹ Whilst historically there has been resistance to define “mining waste” in environmental legislation, the law reform process has resulted in the gazetting of the new Waste Act. However, the Waste Act does not adequately address the definition of “mining waste” and the roles of DMR and DEA in the management of mining waste. Consultation is required between the two national government departments to adequately resolve this issue, without causing further fragmentation in the management of mining waste in South Africa.¹¹²

3.3 Pollution

Du Plessis and Kotzé¹¹³ argue that pollution is always harmful since it affects some or all components in a broadly defined environment.¹¹⁴ Pollution is caused

¹¹⁰ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse 1.*

¹¹¹ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse 1.*

¹¹² Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse 1.*

¹¹³ Kotzé and Du Plessis 2007 *Stell LR* 188.

¹¹⁴ The importance of legally defining “environment” is to delineate the scope of the subject, to determine the application of legal rules and the extent of liability when harm occurs. The term “environment” can describe a limited area or almost infinite space and factors. In a general sense the environment can be described as “the circumstances, objects, or conditions by which one is surrounded”. In its largest physical sense the environment has been described as “the complex of physical, chemical, and biotic factors (as climate, soil,

by substances or emissions that cause harm or damage, or have the potential risk of harming or damaging human health or well-being, the environment, or property. This implies that only when the level of exposure exceeds the capacity of the receiving environment, the contamination will be considered “pollution”.¹¹⁵ This definition correlates with defining pollution in relation to the ambient quality of the environment.¹¹⁶ Thus, the introduction of any substance or energy form that lowers the ambient quality of the environment and that exceeds the carrying capacity of the environment can be regarded as “pollution”.¹¹⁷

Contrasting concepts of pollution exist. According to the first, an emission will only be considered pollution when the substance or energy released into the environment exceeds discharge or quality standards set for the receiving environment by public authorities.¹¹⁸ The second approach evaluates pollution as independent of violation of a discharge threshold and more in relation to the impact of the substance or energy on the environment or its victims.¹¹⁹ NEMA is more in line with the second approach and defines pollution as any change in the environment caused by substances, radioactive or other waves, noise, odours, dust or heat “emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services”.¹²⁰

and living things) that act upon an organism or an ecological community and ultimately determine its form and survival.” Section 1 of NEMA legally defines “environment” as the surroundings within which humans exist and that are made up of land, water and the atmosphere of the earth; micro-organisms, plant and animal life; and the inter-relationships among and between them; and the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being. Although many variations of the definition of “environment” exist, all the definitions commonly provide for all aspects of the living community on earth and the natural, human-made and social surroundings of that community. Within this respect, the mining industry will be regulated in terms of its inter-relationship with the broad environment as well as its physical, chemical and aesthetic properties that influence human health and well-being. Kiss and Shelton *Manual of European Environmental Law* 4. Also see Sands *Principles of International Environmental Law* 15-16.

¹¹⁵ Bosman “Integrated Waste Management” 717.

¹¹⁶ Ambient quality refers to the environment in its “natural state”, before the intervention of humankind.

¹¹⁷ Ison, Peake and Wall *Environmental Issues and Policies* 133-134.

¹¹⁸ De Sadeleer *Environmental Principles: From political Slogans to Legal Rules* 38-39.

¹¹⁹ De Sadeleer *Environmental Principles: From political Slogans to Legal Rules* 38-39.

¹²⁰ Section 1 of NEMA. The MPRDA, NWA and Waste Act refer to pollution with reference to the definition in NEMA.

This definition emphasises that in order for there to be pollution, there must be “damage”, in other words:¹²¹

an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people...

The definitions given to the term “pollution” in international law tend to follow the same reasoning. They generally comprise the following elements: the indirect or direct introduction of substances or energy into a specific environment giving rise or able to give rise to deleterious effects that could endanger human health, damage biological resources or disturb the function of ecosystems, cause deterioration of material goods or damage amenities and other legitimate uses of the environment.¹²²

The question is now raised whether a mining company that complies with environmental regulations and standards set by government authorities should nevertheless bear the costs and liability of its pollution. De Sadeleer¹²³ maintains, and I agree, that pollution should be defined independently of what may or may not be legal. He argues that this is a fair approach because polluters are responsible for their discharges, even if a government body authorises them, otherwise the public would have to bear the costs of clean-up when government regulations are inadequate. Du Plessis and Kotzé¹²⁴ follow the same reasoning, when evaluating section 28 of NEMA, and note that:

The section clearly intends to hold those liable who caused damage due to an act of pollution, and not necessarily a breach of any statutory provision or duty.¹²⁵

¹²¹ Section 1 of NEMA.

¹²² De Sadeleer *Environmental Principles: From political Slogans to Legal Rules* 39-40.

¹²³ De Sadeleer *Environmental Principles: From political Slogans to Legal Rules* 40.

¹²⁴ Kotzé and Du Plessis 2007 *Stell LR* 186.

¹²⁵ This may be of particular importance in instances where a mining company argues that it is not liable for the costs of pollution prevention, control or remediation since no legislative provision has been violated.

They furthermore, and very importantly, state the following as well:¹²⁶

The responsible person may still be held liable for pollution damage even though the polluting act was conducted in terms of a valid authorisation and law as long as it can be proved that pollution was not minimised or rectified. It may further entail that an on-going duty rests on the responsible person to minimise and rectify pollution, regardless of whether that pollution was caused by historical, present or future activities.

To limit the extent and definition of pollution to unlawful impairment will not encourage polluters, who are in compliance with emissions standards, to reduce the harmfulness or quantity of their polluting activities even further. Furthermore, the principle of prevention will remain ill served as long as the PPP is impaired by the internalisation of pollution costs. Finally, at the level of liability, nothing prevents an act of wrongful pollution being evaluated from the perspective of duty of care owed by the liable party, whether or not he/she respected the standards incumbent upon him/her.¹²⁷ Being allowed to pollute by the law or by government should not absolve the mining industry from liability.

4. South African legal framework

For most of its history,¹²⁸ the mining industry in South Africa has not been subjected to comprehensive environmental regulation. However, in recent years,

¹²⁶ Kotzé and Du Plessis 2007 *Stell LR* 186.

¹²⁷ De Sadeleer *Environmental Principles: From political Slogans to Legal Rules* 38-41.

¹²⁸ The legislative development concerning mining in South Africa is landmarked by the discovery of the gold reef outcrop in 1866 and diamonds in 1867. Pre-Union mining legislation showed little concern for environmental conservation with the primary concern being the damage suffered by the landowner. The environment was only indirectly relevant, if at all, in that legislation regulated the exploitation of minerals. Post-Union legislation similarly vested the right to mine precious metals and oil in the state, whilst prospecting and mining rights for base metals were vested in the mineral right owner. The first serious environmental alarm gained eminence in 1977, when the *Mines and Works Act 27* of 1956 was amended to enable the then Minister of Mineral and Energy Affairs to make regulations regarding the conservation of the environment at or near mines and works. Subsequent regulations issued in 1980, constituted the first considerable mining legislation aimed at environmental conservation. In 1992 the *Minerals Act 50* of 1991 came into operation with the objectives to ensure the optimal exploitation of minerals, to ensure the health and safety of miners and people involved in mining operations and to ensure that the logical use and rehabilitation of the surface of land during and after mining has taken place. The *Mine Health and Safety Act 29* of 1996

this has changed significantly and the industry is now required to comply with a multifaceted network of mining and environmental legislation.¹²⁹ There are no shortages of policy and legal frameworks to ensure “responsible” mining in South Africa.¹³⁰ The *Minerals and Mining Policy for South Africa*, 1998 affirmed that the State, as custodian of the nation’s natural resources will support mining development while maintaining and enhancing environmental awareness of the mining industry in accordance with national environmental policy, norms and standards.¹³¹ To this end, 10 principles on sustainable mining were adopted.¹³² This section will focus on the preliminary considerations in respect of the liability of mines, and highlights the key provisions of four statutes concerning the nature of liability in respect to mining pollution: the Constitution, NEMA, MPRDA and the NWA.

4.1 The Constitution

The Constitution reigns supreme and the advancement of human rights is one of the foundations of South Africa’s democracy.¹³³ Furthermore, the Bill of Rights plays a central role in the democratic regime because it embodies a set of fundamental values which should be promoted at all times.¹³⁴ One of the

and more recently, the MPRDA have repealed the *Mineral Act* 50 of 1991. For a detailed discussion on the legislative development of mining in South Africa, see in general Godfrey *et al* *Mineral Waste: The Required Governance Environment to Enable Reuse and Wells et al* “Terrestrial Minerals”.

¹²⁹ Humby Date Unknown [http://www.fse.org.za/downloads/PROF TRACY HUMBY Policy and Legislative Framework](http://www.fse.org.za/downloads/PROF_TRACY_HUMBY_Policy_and_Legislative_Framework).

¹³⁰ Humby Date Unknown [http://www.fse.org.za/downloads/PROF TRACY HUMBY Policy and Legislative Framework](http://www.fse.org.za/downloads/PROF_TRACY_HUMBY_Policy_and_Legislative_Framework).

¹³¹ *Minerals and Mining Policy for South Africa*, 1998 paragraph 4.2.

¹³² These include: the adoption of the precautionary approach as well as the polluter pays principle; assertion that a consistent standard of environmental impact management would be adopted, irrespective of the scale of mining concerned; encouraging the mining industry to reduce problems of pollution by promoting a culture of waste minimisation through re-cycling, and re-use of waste products; and ensuring the effective implementation of environmental management measures and monitoring of occurrences of pollution, amongst others. *Minerals and Mining Policy for South Africa*, 1998 paragraph 4.4.

¹³³ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation and Land Affairs* 2004 5 SA 124 (WLD) paragraphs 140G-140J.

¹³⁴ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation and Land Affairs* 2004 5 SA 124 (WLD) paragraphs 141A-141E.

fundamental values is contained in section 24¹³⁵ and is, arguably, the cornerstone for environmental governance in South Africa which includes the mining industry.

Section 24(a) proclaims the right of everyone “to an environment that is not harmful to their health or well-being.” Section 24(b) states that everyone has the right:

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.

Section 24, when read with the application provisions of the Bill of Rights set out in section 8, binds not only the state in its relation with individuals, but also individuals who may assert their constitutional environmental right against other individuals.¹³⁶ The possibility of direct horizontal application (derived from the German concept *mittelbare Drittwirkung*)¹³⁷ is important because it is the first line of defence where mines can be held liable for pollution and ecological

¹³⁵ For more detailed discussions on section 24, see Currie and De Waal *The Bill of Rights Handbook* 521-530; Glazewski *Environmental Law in South Africa* 72-81; and Feris 2008 *SAPL* 194-207.

¹³⁶ Glazewski *Environmental Law in South Africa* 74-75; Kotzé 2004 *PELJ* 42 and Kotzé and Du Plessis “A Gold Rush to Nowhere? Re-evaluating the Role of the Rights-based Approach in Governing South Africa’s Mining Sector” (Unpublished conference presentation, copy on file with author). The horizontal application of environmental rights has been confirmed in the case of *McCarthy v Constantia Property Owners Association* 1999 JOL 5124 (C) at 11, where the Cape High Court found that the traditional (and artificial) divide between public and private law can no longer be sustained and this resulted in a wide range of duties and obligations that rests on the state as well as the private sector. In other words, the court confirmed that the environmental right is enforceable against mines to safeguard health and well-being, protect the environment for present and future generations, prevent pollution and ecological degradation, promote conservation, and secure ecologically sustainable development and use of natural resources.

¹³⁷ Kotzé 2007 *Review of European Community and International Environmental Law* 298-311. For a concise description of the German scenario as a comparative study with the British position, see, Brinktrine 2001 *European Human Rights Law Review* 421-432. See also on the issue of the direct horizontal application of rights and obligations on certain corporations, Emmerich-Fritsche 2007 *Archiv des Völkerrechts* 541-565.

degradation.¹³⁸ Mines are thus duty-bound to constitutional, legislative, and other measures to prevent pollution and ecological degradation, promote conservation and to develop in a sustainable manner.

Two particular judgments deserve consideration in that they contain a comprehensive analysis of the nature and content of the environmental right within the sustainability¹³⁹ context.¹⁴⁰ Firstly, the court in *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation and Land Affairs*¹⁴¹ confirmed that environmental interests should be balanced with justifiable economic and social development well beyond the interests of the present living generation. The court justified the latter with section 24(b), since this section requires the environment to be protected for the benefit of present and future generations.¹⁴²

The court confirmed the importance of sustainable development and predicted that it will "...play a major role in determining important environmental disputes in the future".¹⁴³ Furthermore, the court emphasised the importance of progressively realising the protected environmental right by stating that:¹⁴⁴

Pure economic principles will no longer determine, in an unbridled fashion, whether a development is acceptable. Development, which may be regarded as economically and financially sound, will, in future, be balanced by its environmental impact, taking coherent cognisance of the principle of intergenerational equity and sustainable use of resources in order to arrive at an integrated management of the environment, sustainable development and socio-economic concerns. By elevating the environment to a fundamental justiciable human right, South Africa has irreversibly embarked on a road, which

¹³⁸ Currie and De Waal *The Bill of Rights Handbook* 524.

¹³⁹ Sustainable development is not defined in the Constitution. However, section 1 of NEMA defines sustainable development as "the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations".

¹⁴⁰ The cases of *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation and Land Affairs* 2004 5 SA 124 (WLD) and the *Fuel Retailers*-case will accordingly be discussed.

¹⁴¹ *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation and Land Affairs* 2004 5 SA 124 (WLD).

¹⁴² Paragraphs 143B-143E. For further discussions on this case, see Kotze and Paterson "South Africa" 573-575; Feris "Environmental Rights and Locus Standi" 139-141 and Feris "Constitutional Environmental Rights: An Underutilised Resource" 16-17.

¹⁴³ Paragraph 144A.

¹⁴⁴ Paragraphs 144B-144D.

will lead to the goal of attaining a protected environment by an integrated approach, which takes into consideration, *inter alia*, socio-economic concerns and principles.

Within this context, the mining industry (and the accompanied social and economic development it should bring with it) is constitutionally bound to uphold the environmental right.¹⁴⁵ The court in *Fuel Retailers*¹⁴⁶ attempted to balance these social, environmental and economic concerns by recognising the importance of economic and social development for the well-being of human beings. However, the court emphasised that development and the environment are inexorably linked and development cannot exist upon a weakening environmental base. Consequently, the promotion of development requires the protection of the environment.¹⁴⁷ The court concluded that the obligation to ensure the essence of sustainability is primarily that of the judiciary and, accordingly, the courts have a critical role to play in the protection of the environment. Where there is a need to protect the environment, the courts should not hesitate to do so.¹⁴⁸

The constitutional environmental right¹⁴⁹ elevates the importance of environmental protection and conservation, and emphasises the significance that South Africans attach to a sound and healthy environment. It is also indicative of an anthropocentric choice for environmental protection, i.e. one that accepts the

¹⁴⁵ The court in the *Fuel Retailers*-case emphasised that “the need to protect the environment cannot be gainsaid. So, too, is the need for social and economic development. How these two compelling needs interact, their impact on decisions affecting the environment and the obligations of environmental authorities in this regard, are important constitutional questions”.

¹⁴⁶ For further discussions on this case, see Kotze and Paterson “South Africa” 575-577; Feris “Environmental Rights and Locus Standi” 140-141 and Feris “Constitutional Environmental Rights: An Underutilised Resource” 17.

¹⁴⁷ Paragraph 44 at 25.

¹⁴⁸ Paragraph 104 at 58.

¹⁴⁹ Note that the environmental right is supplemented by an array of other key substantive and procedural rights which generally complement and facilitate its implementation. However, an extensive analysis of these rights, and the manner in which they intersect with the environmental right, falls outside the ambit of this section. For a detailed discussion of the environmental as well related rights, see Kidd *Environmental Law* 18-31; Glazewski “The Environmental Right” and; Glazewski *Environmental Law in South Africa* 67-102.

unified nature of the relationship between humans and the environment and, as such, the environmental right serves as the foundation for basic human existence.¹⁵⁰ The environmental right has extended the range and types of issues that may be taken to court.¹⁵¹ In addition, the environmental right applies horizontally and this implies that the mining industry has to exercise a duty of care if liability, on the basis of the constitutional environmental right, is to be avoided. The constitutional environmental right is given effect to by means of detailed statutory provisions ranging from framework to sectoral legislation which relate to mining.

4.2 The National Environmental Management Act

As demonstrated above, NEMA provides for a comprehensive array of principles which cumulatively aim to create among others, corporate socially responsible behaviour by establishing legal liability for environmental damage as well as damage to human health and well-being. Apart from these principles, NEMA also contains mechanisms, procedures and structures to facilitate pollution prevention, minimisation and remediation. NEMA encompasses a comprehensive liability regime and compensation procedure for environmental damage and as Soltau¹⁵² emphasises:

NEMA as a whole represents a milestone in South African environmental law. Environmental liability rules are crucial in a system of regulation: they concretise the polluter pays principle, serving to put a proper value on the environment in the economic decision-making of polluters. Putting such remedies in the hands of the state should create a tool for the restoration and remediation of polluted environments.

¹⁵⁰ Feris “Constitutional Environmental Rights: An Underutilised Resource” 27-28.

¹⁵¹ The Constitutional environmental right enhances the number, nature and scope of legal remedies available to enforce the right, as one may rely on all available constitutional remedies to assert this right. Courts can, for example, declare laws, regulations as well as other measures or actions invalid and unconstitutional. Courts may further award damages, order interdicts, administrative remedies or issue a declaration of rights. See further in this regard Currie and De Waal *The Bill of Rights Handbook* 199-226.

¹⁵² Soltau 1999 *SAJELP* 34.

Chapter 7 of NEMA contains essential provisions dealing with liability for environmental damage in South Africa and two key elements form part thereof; namely: pollution prevention and remediation.¹⁵³ A duty of care is contained in section 28, which encompasses the main liability provision. As a result of the *Bareki*-case, NEMA was recently amended and liability now applies retrospectively and therefore also to historical pollution.¹⁵⁴ Section 28(1)¹⁵⁵ applies to all forms of pollution, including mining pollution, and is formulated generally by providing a duty of care to avoid, minimise and/or remedy pollution or environmental degradation.¹⁵⁶ In terms of this subsection, the duty imposes liability on an almost non-exhaustive category of persons, because it refers to "every person". Section 28(2) goes even further and imposes the duty on a range

¹⁵³ Kotzé and Du Plessis 2007 *Stell LR* 185.

¹⁵⁴ Section 12(a) of the *National Environmental Laws Amendment Act* 14 of 2009 (Hereafter referred to as NELAA) inserted subsection (1A)(a) into NEMA making section 28(1) applicable to pollution or degradation retrospectively. The retrospective working of section 28 is voiced by a number of authors. See, in general, Glazewski *Environmental Law in South Africa*; Kotzé and Du Plessis 2007 *Stell LR*; Winstanley "Administrative Measures" 227 and; Soltau 1999 *SAJELP*.

¹⁵⁵ Section 28 obliges every person who causes, has caused or may cause significant pollution or degradation of the environment to take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment. Mining activities that cause or may cause pollution or environmental degradation will fall within the scope of the duty. However, the extent to which the duty applies to actors throughout the life cycle of pollution is not explicit. For example, a mining company that produces hazardous waste transfers the waste to a third person for treatment and disposal. The third person disposes of the untreated waste inappropriately by dumping it on open ground adjacent to a community. Firstly, it can be argued that the scope of the duty is broad because subsection (1) refers to the fact that if a person causes significant pollution they must take reasonable measures and that subsection (8) includes people who indirectly contributed to the pollution and, thus, the mine is accordingly liable. Secondly, it may be argued that in transferring the waste to the third party, the mine entered into a contract stipulating that the waste had to be treated and disposed of in an environmentally sound manner, fulfilling the "reasonable measures" requirements. Thus the mine cannot be held liable for the conduct of the third party. Apart from this, where the duty is applicable to mining activities, a key requirement for the duty to be triggered is that the pollution or degradation must be "significant". Although the term is not defined in NEMA, some direction on the meaning has been provided by the court in *Hichange Investments (Pty) Ltd v Cape Produce Company (Pty) Ltd t/a Pelts Products & Others* 2004 (2) SA 939 ECD. The court concluded that because of the environmental right, "the threshold level of significance will not be particularly high." Whilst the court has indicated that it will give a broad interpretation to the term, it is not clear if all mining activities will meet the requirement of significance. Winstanley "Administrative Measures" 228-229.

¹⁵⁶ Kotzé and Du Plessis 2007 *Stell LR* 185; Winstanley "Administrative Measures" 226 and Feris 2006 *PELJ* 56-57.

of people including owners or people in control of land or premises and people who have the right to use the land or premises on which, or in which, an activity or process is, or was, performed or undertaken, or any other situation exists which causes, or is likely to cause, significant pollution or degradation to the environment.¹⁵⁷

The duty of care imposes strict liability since section 28(1) requires reasonable persons to take reasonable measures.¹⁵⁸ Subsection (3) provides an indicative range of measures that can be considered as “reasonable measures” and these may include measures to investigate, assess and evaluate the impact on the environment; inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation, contain or prevent the movement of pollutants or the causing of degradation, eliminate any source of the pollution or degradation and remedy the effects of the pollution or degradation.¹⁵⁹ One can identify from the wording an obligation to prevent and minimise pollution or degradation and the list indicates that remediation is clearly part of South African law. Where a mine fails to take reasonable measures to prevent or minimise pollution, it can be directed to do so by the relevant authority and if it does not comply with the directive, measures will be taken by government on its behalf, but at the mine’s expense.¹⁶⁰ In addition to civil liability, the newly added section 28(14) makes any unlawful and intentional or negligent

¹⁵⁷ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse 21*. This section suggests that a person need not have caused the pollution or environmental degradation. The responsible person may merely have been in control of the land, or may have been a lessee, sub-lessee, contractor, or subcontractor who did not cause the pollution. Such a person may be required to remediate the pollution. Kotzé and Du Plessis 2007 *Stell LR* 186.

¹⁵⁸ Without any guidance on what would constitute reasonableness, the measures taken in a situation will have to be evaluated against the test of reasonableness on a case-by-case basis. Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse 21*.

¹⁵⁹ Winstanley “Administrative Measures” 225-226.

¹⁶⁰ Sections 28(4), 28(7)-(8).

act which causes significant pollution or degradation, or detrimentally affects the environment, subject to criminal liability¹⁶¹

In terms of section 24R, responsibility for environmental liability of the mine only extends up until the time that government issues the mine with a closure certificate. The closure certificate thus absolves mines from their responsibilities with respect to:¹⁶²

any environmental liability, pollution or ecological degradation, the pumping and treatment of extraneous water, [and] the management and sustainable closure thereof.

The above pardon of liability is issued regardless of the “cradle to grave” principle, read with the PPP, which holds polluters liable for bearing the financial burden of their polluting activities throughout its life-cycle. However, the issuing of a closure certificate is subject to the fulfilment of various criteria and requirements by the mine, including environmental rehabilitation.¹⁶³ Nevertheless, the evident contradiction in NEMA is a critical point of unease since the closure certificate could be used by mines as justification and proof that liability has indeed ended, when, in fact, it has not.¹⁶⁴

Under section 34(7), liability is specifically extended to the director of the mining company concerned in his or her personal capacity, in other words, the director is personally liable.¹⁶⁵ Furthermore, section 43 provides that if directors failed to

¹⁶¹ Section 12(d) of NELAA. A contravention or failure to comply with subsection (14) is punishable by a fine not exceeding R1 million or imprisonment for a period not exceeding 1 year or both, thus enforcing the PPP.

¹⁶² Section 24R(1).

¹⁶³ Section 43.

¹⁶⁴ Note the situation where mining pollution arises long after mining has occurred (for example AMD). While the principle of life-cycle liability seems to be adequate to hold mines liable for addressing this latent pollution, the closure certificate might very well end liability prematurely and thus leave the problem to parties other than the mine.

¹⁶⁵ Section 34(7) states that any person who is or was a director of a mining company at the time of the commission by that mining company is guilty of an offence under a provision listed in Schedule 3 and will be guilty in his/ her personal capacity of the offence and liable on conviction to the penalties imposed, if the offence in question resulted from the failure of the director to take all reasonable steps that were necessary under the

take all reasonable steps to prevent the offence being committed, and monetary advantage was gained, they may be personally liable for damages or compensation, have to pay a fine, or have to comply with remedial measures determined by the Court, and may even have to pay the State's investigative costs. The latter was confirmed in the *Stilfontein*-case where the court held, in a telling statement that:¹⁶⁶

The object of the directives is to prevent pollution of valuable water resources. To permit mining companies and their directors to flout environmental obligations is contrary to the Constitution, the Mineral Petroleum Development Act and to the National Environmental Management Act. Unless courts are prepared to assist the State by providing suitable mechanisms for the enforcement of statutory obligations an impression will be created that mining companies [and their directors] are free to exploit the mineral resources of the country for profit over the lifetime of the mine, thereafter they may simply walk away from their environmental obligations. This simply cannot be permitted in a constitutional democracy which recognises the right of all of its citizens to be protected from the effects of pollution and degradation.

Furthermore, section 24P(1) recognises the significance of financial regulatory instruments in accordance with the PPP. Before an environmental authorisation is issued, a mine applying for the authorisation:¹⁶⁷

relating to prospecting, mining, exploration, production or related activities on a prospecting, mining, exploration or production area must make the prescribed financial provision for the rehabilitation, management and closure of environmental impacts.

If the mine fails to rehabilitate or to manage such impacts, government may use this financial provision to fulfil the environmental obligations of the mine on its behalf.¹⁶⁸ The obligation of maintaining and retaining the financial provision

circumstances to prevent the commission of the offence by the mining corporation. Van Eeden, Liefferink and Durand 2009 *The Journal for Transdisciplinary Research in Southern Africa* Vol 5(1) 59.

¹⁶⁶ 352D-352H. This remarkable decision was, appallingly, overturned by the court in the *Kebble*-case. The court held that the statutory directives were unclear, incapable of implementation; and accordingly the company and its directors could not be held to be in contempt of court.

¹⁶⁷ Section 24P(1). According to section 24P(3), environmental liability must be assessed annually and be adjusted by the mine where necessary.

¹⁶⁸ Section 24P(2).

remains in force until a closure certificate is issued.¹⁶⁹ Note the fact that the requirement of providing financial provision is attached to present authorisations and will accordingly only apply where mines have recently sought environmental authorisations, or where they will do so in the future. A worrying question is thus raised whether the current financial provision will be sufficient to adequately address mining pollution which occurred in the past.¹⁷⁰ The extent and inability of mines to properly deal with the issue of AMD is strong evidence in favour of the argument that these financial provisions are in fact insufficient.

NEMA, as framework legislation, serves as both enabling legislation for the constitutional right and as a vehicle to realise the constitutional protection afforded to the environment. As an overarching framework, NEMA provides for integrated environmental management; coordinated and sustainable protection of the environment¹⁷¹ as well as allowing for complementary subsidiary and sectoral laws to be adopted.¹⁷² Subsequent to the commencement of NEMA, a number of sectoral environmental laws were promulgated, such as the MPRDA and the NWA.

¹⁶⁹ Section 24R(2).

¹⁷⁰ For example the current AMD problem is a result of historical mining practices which occurred at a time when regulation was insufficient and when no financial provisions were made.

¹⁷¹ The MPRDA provides for the regulation of environmental impacts caused by mining operations and makes the Minister of Mineral Resources the competent authority responsible for environmental regulation in the mining industry. However, NEMA provides a general environmental regulatory framework for South Africa and the Minister of Water and Environmental Affairs is the competent authority. Consequently, mineral development and environmental conservation do not coincide and the mandates of the two Ministers often conflict which leads to a fragmented regulation of mines and poor enforcement of environmental standards.

¹⁷² Van der Linde "NEMA" 194-195. Framework legislation "aims to define overarching and generic principles in terms of which sectoral-specific legislation is embedded, as well as to enhance the co-operative environmental governance amongst fragmented line ministries". Du Plessis and Nel *SAJELP* 1-2.

4.3 *The Mineral and Petroleum Resources Development Act*

South Africa is described as a mineral rich country and this has led to the creation of a mining industry which is very important to the country's economy.¹⁷³ However, a mineral deposit is only a potential source of wealth, and the significance of the deposit becomes evident only when a mineral is mined, resulting in the disturbance of the natural environment. While most of the environmental aspects of mining are now regulated by NEMA,¹⁷⁴ the MPRDA nevertheless contains complementary liability provisions and embraces environmental concerns elevating environmental protection to be in line with current worldwide trends to value the environment as an integral part of the economic process.¹⁷⁵

Section 38 provides a key insight into the MPRDA's environmental liability approach. In terms of this section, mines¹⁷⁶ are required to appraise themselves of potential environmental impacts; manage any environmental impacts; and rehabilitate the environment in so far as is reasonably possible.¹⁷⁷ Furthermore, section 38(1)(e) states that such holders, whose mining causes or results in ecological degradation, pollution, or environmental damage that may be harmful to the health or well-being of anyone:

...is responsible for any environmental damage, pollution or ecological degradation as a result of his or her operations and which may occur inside and

¹⁷³ Shabangu, Mineral Resources Minister, stated at a recent media conference that "South Africa has R2.5-trillion worth of mineral reserves, [and] it is clear that the mining industry is potentially an important cog in the wheel that is driving the war against poverty and underdevelopment in our country." Shabangu "Measures to Bring Stability to South Africa's Mining Sector" 3.

¹⁷⁴ The *National Environmental Management Amendment Act* 62 of 2008 was passed to bring environmental regulation of mines under the ambit of the Ministry designated with responsibility of environmental management. These provisions will strengthen the liability regime; however, whilst the majority of provisions came into force over two years ago, the provisions related to mining remain unimplemented.

¹⁷⁵ Wells *et al* "Terrestrial Minerals" 543.

¹⁷⁶ The holders of a reconnaissance permission, prospecting right, mining right, mining permit or retention permit.

¹⁷⁷ Godfrey *et al* *Mineral Waste: The Required Governance Environment to Enable Reuse* 20.

outside the boundaries of the area to which such right, permit or permission relates.

These holders will "...remain responsible for any environmental liability, pollution or ecological degradation and the management thereof until a closure certificate has been issued."¹⁷⁸

Similar to NEMA,¹⁷⁹ the MPRDA specifically extends the widely-framed liability of mines to the director of the mining company concerned in his or her personal capacity, by stating in section 38(2) the following:

...the directors of a company or members of a close corporation are jointly and severally liable; for any unacceptable negative impact on the environment, including damage, degradation or pollution; advertently or inadvertently caused by the company or close corporation which they represent or represented.

In general, this provides for a comprehensive liability net which must also be considered in light of NEMA's provisions.

According to section 39¹⁸⁰ a mine must indicate how it will contain or remedy the cause of pollution or degradation and migration of pollutants and comply with any prescribed waste standards or management practice.¹⁸¹ Granting of permission to mine or prospect, among others, is conditional on an environmental management programme and plan being submitted and accepted by the relevant government authority.¹⁸² Prior to approval of an environmental management plan or programme, the applicant for a mining right or permit must, in terms of the

¹⁷⁸ Section 43(1) of the MPRDA.

¹⁷⁹ Section 34(7) of NEMA.

¹⁸⁰ Section 39 deals with the preparation of an environmental management programme and plan; and require a description of the manner in which the holder intends to modify, remedy, control or stop any action, activity or process, which causes pollution or environmental degradation.

¹⁸¹ Dixon 2003 *The Journal of The South African Institute of Mining and Metallurgy* 486.

¹⁸² According to section 5(4), among others:

No person may prospect for or remove, mine, conduct technical co-operation operations, reconnaissance operations, explore for and produce any mineral or petroleum or commence with any work incidental thereto on any area without an approved environmental management programme or approved environmental management plan.

MPRDA,¹⁸³ also make financial provision for remediation of environmental damage or management of negative environmental impacts.¹⁸⁴ The financial provision is required as an insurance guaranteeing the availability of sufficient funds to undertake rehabilitation of mining areas.¹⁸⁵

Section 43 is one of the most important provisions as it deals with the responsibility for any environmental liability, pollution or ecological degradation until the issue of the closure certificate.¹⁸⁶ On written application by the mine, the Minister may transfer such environmental liabilities and responsibilities as may be identified in the environmental management programme and closure plan to a person with such qualifications as may be prescribed.¹⁸⁷ Whilst it is clear that the Minister has discretion to transfer said environmental liabilities, it is still unclear what the requirement “suitably qualified” necessitates, as well as who this person might be. Environmental liability will not necessarily cease or fall away by the issuing of a closure certificate. However, it is derived from this section that where the mine is absolved from liability by the closure certificate, or liability is not transferred to a “suitably qualified” person, environmental responsibility as a minimum will always resort back to the state. In this case, the cost of pollution is externalised to the state, and thus the tax-paying public, in contradiction to the PPP.

¹⁸³ Section 41(1) requires an applicant for a mining right to make the prescribed financial provision for the management or rehabilitation of negative environmental impacts.

¹⁸⁴ Van Eeden, Liefferink and Durand 2009 *The Journal for Transdisciplinary Research in Southern Africa Vol 5(1)* 60.

¹⁸⁵ Environmental liability should be assessed annually and the financial provision accordingly adjusted to the satisfaction of the Minister; and if the Minister is not satisfied with the assessment and financial provision contemplated in this section, he/she may appoint an independent assessor to conduct the assessment and determine the financial provision. The requirement to maintain and retain the financial provision remains in force until the Minister issues to such holder a closure certificate in terms of section 43; but the Minister may retain such portion of the financial provision as may be required to rehabilitate the closed mining or prospecting operation in respect of latent or residual environmental impacts. Sections 41(3) and (4). Wells *et al* “Terrestrial Minerals” 552-554.

¹⁸⁶ Dixon 2003 *The Journal of The South African Institute of Mining and Metallurgy* 486.

¹⁸⁷ Section 43(2).Wells *et al* “Terrestrial Minerals” 553. These prescriptions are contained in Regulations 58 and 59 of the MPRD Regulations.

In addition to the broader liability provisions above, section 45 provides that the relevant authority may direct a mine to undertake remedial measures where:

...any prospecting, mining, reconnaissance or production operations cause or results in ecological degradation, pollution or environmental damage which may be harmful to the health or well-being of anyone and requires urgent remedial measures.

Where the mine fails to take these measures, the relevant authority will act on its behalf and then recover costs incurred from the mine.¹⁸⁸ If the mine fails to compensate the authority, the latter is empowered to seize and sell the mine's property to recover the costs.¹⁸⁹ The mine will thus remain financially liable for the rehabilitation, even if it chooses to ignore the government directive.

Section 46 makes provision for the situation where mines, among others, do not exist anymore and the remedial measures contained in section 45 cannot be taken as directed by the Minister. Accordingly, the Minister is granted the power to instruct the relevant Regional Manager,¹⁹⁰ to take the necessary measures to prevent further pollution or degradation, or to "make the area safe". In terms of section 46(2), these measures must be funded from the financial security provision made by the mine, or "if there is no such provision or if it is inadequate, from money appropriated by Parliament for that purpose".

Once again and in contradiction to the PPP, the cost of pollution bears down on tax-payer money. On the other hand, mines can be held criminally liable for contravening any of the provisions of the MPRDA.¹⁹¹ This, however, serves only

¹⁸⁸ Section 45(2)(a).

¹⁸⁹ Section 45(2)(c).

¹⁹⁰ In terms of section 8, the Director General must designate an officer in the service of the Department as regional manager for each region contemplated, to perform the functions delegated to him/her in terms of the MPRDA or any other law.

¹⁹¹ Section 98 and 99.

as a method of deterring existing and future perpetrators and do not focus on rehabilitation or restitution.¹⁹²

4.4 The National Water Act

One of the main and ever-continuing concerns in South Africa is the sustainability of water management, and the costs associated with the prevention and remediation of pollution in a country with an average rainfall far below international standards.¹⁹³ The NWA¹⁹⁴ is one of the government's answers to some of these challenges and functions as sectoral legislation within the framework of NEMA.¹⁹⁵

¹⁹² Criminal sanctions are the most widely prescribed sanction for environmental liability, (Glazewski *Environmental Law in South Africa* 118) and at the forefront of the "command and control" regulatory approach (Kidd 2002 *SAJELP* 26). Kidd defines the impact of criminal sanctions as stigmatising certain forms of behaviour as it attracts community condemnation. It also involves punishment and it is the only measure whereby an offender can be subject to imprisonment. Kidd "Criminal Measures" 241. However, criminal sanction should be reserved for the most serious environmental offences. Criminal sanctions should, firstly, be reserved in cases where there is intentional wrongdoing, for example, where a mine illegally dumps hazardous substances or fails to comply with notices, directives or similar instructions by officials. Secondly, prosecution should be used where there is persistent wrongdoing. For example, where a mine repeatedly fails to comply with emission standards where past infractions have been pointed out. Lastly, an offender who has caused serious harm to people and the environment should be prosecuted but only where there is criminal intent on the part of the offender (at least in the form of negligence) Kidd 2002 *SAJELP* 25. The deficiencies of the criminal process include inadequate policing, a lack of public awareness and co-operation, difficulties in investigation, evidential problems, obstacles presented by "due process safeguards", a lack of expertise of court officials and inadequate sanctions. For a more detailed discussion see Kidd 2004 *SAJELP* 54-57; Kidd 1998 *SAJELP* 188-191; and Loots 1994 *SAJELP* 17-22.

¹⁹³ Kotzé and Bosman 2006 *Obiter* 136.

¹⁹⁴ Section 2 provides for the purpose of the NWA as well as various provisions, procedures and mechanisms to ensure the water resources are protected, used, developed, conserved, managed and controlled in ways which take into account various factors. These factors include: meeting the basic human needs of present and future generations; promoting the efficient, sustainable and beneficial use of water in the public interest; facilitating social and economic development; providing for growing demand of water use; protecting aquatic and associated ecosystems and their biological diversity; and reducing and preventing pollution and degradation of water resources.

¹⁹⁵ Kotzé and Bosman 2006 *Obiter* 136.

Section 19 of the NWA mirrors the provisions of section 28 of NEMA and addresses the prevention and remediation of the effects of pollution.¹⁹⁶ The NWA provides a wide duty of care in that:¹⁹⁷

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

The words “likely to cause pollution” broadens the scope of the duty, which enables an activity, or situation that is land-based, to trigger the application of the duty.¹⁹⁸ Unlike NEMA, the NWA broadens the scope of applicability without limiting the ambit of liability to pollution that is significant by including any pollution within the scope of the provision.¹⁹⁹ The “reasonable measures” are not prescribed, but may include measures intended to:²⁰⁰

cease, modify or control any act or process causing the pollution; comply with any prescribed waste standard or management practice; contain or prevent the movement of pollutants; eliminate any source of pollution; remedy the effects of pollution; and remedy the effects of any disturbance to the bed and banks of a watercourse.

Where a mine does not take reasonable measures, section 19(3) provides for a statutory directive, to enable a relevant water authority, to force those in non-compliance with section 19(1) to obey their duty of care.²⁰¹ The act also provides

¹⁹⁶ Reeders 2007 *Without Prejudice* 51.

¹⁹⁷ Section 19(1) of the NWA.

¹⁹⁸ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse* 22.

¹⁹⁹ Godfrey *et al Mineral Waste: The Required Governance Environment to Enable Reuse* 21.

²⁰⁰ Section 19(2) of the NWA.

²⁰¹ Section 19(3) stipulates that a catchment management agency may direct any person who fails to take the measures required to: commence taking specific measures before a given date; diligently continue with those measures; and complete them before a given date. Kotzé and Lubbe 2009 *SAJELP* 53. In the *Harmony*-case the court upheld a directive issued by the Department of Water Affairs in terms of section 19(3) to take measures, including measures on land belonging to another, to prevent AMD from contaminating the Vaal River.

that the relevant water authority may take specific measures it considers necessary to prevent and remedy pollution itself²⁰² and recover the costs incurred as a result from the responsible person.²⁰³ Section 151 sets out the offences for non-compliance, with the directive issued under section 19.²⁰⁴ Subsections (1)(i) and (j) forbid a person to “unlawfully and intentionally or negligently commit any act or omission which pollutes or is likely to pollute a water resource;” or “unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to affect a water resource”.

Failure to comply constitutes a criminal offence and the offender will be liable to a fine and/or imprisonment for a period not exceeding 5 years and on a second conviction, to a fine and/or imprisonment for a period not exceeding 10 years.²⁰⁵ Sections 152 and 153 provide for additional compensation to be paid.²⁰⁶ After making the determination in terms of section 152, the court may award damages against the accused, order him to pay for the cost of any remedial measures required and order that the remedial measures be implemented by the wrongdoer.²⁰⁷

The NWA also provides for water use authorisations which a mine will have to apply for, before commencing with its primary activity of mining.²⁰⁸ Various conditions may be attached to these licenses and a breach thereof will result in criminal and civil liability.²⁰⁹ The conditions attached to water use authorisations will function alongside the additional protective measures, duty of care and statutory liability provisions provided by the NWA and other legislation to regulate a whole array of water issues.

²⁰² Section 19(4) of the NWA.
²⁰³ Section 19(5) of the NWA.
²⁰⁴ Section 151(1)(d) of the NWA.
²⁰⁵ Section 151(2) of the NWA.
²⁰⁶ Reiders 2007 *Without Prejudice* 52.
²⁰⁷ Section 153 of the NWA.
²⁰⁸ Sections 21-55.
²⁰⁹ Section 29.

The detrimental impact of mining on water resources is further regulated by the NWA in a comprehensive set of regulations titled: “Regulations on the Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources”.²¹⁰ In terms of these regulations:²¹¹

No person in control of a mine or [mining] activity may place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation.

Regulation 7 provides for a whole array of provisions which specifically aim to protect water resources from mining. These provisions state that every person in control of a mine or mining activity must take all reasonable measures to, *inter alia*: prevent water containing waste or any substance which causes or is likely to cause pollution from entering any water resource; design, modify, locate, construct and maintain all water systems including residue deposits, to prevent the pollution of any water resource through the operation or use thereof; cause effective measures to be taken to minimise the flow of any surface water or floodwater into mine workings, opencast workings, other workings or subterranean caverns; prevent the erosion or leaching of materials from any residue deposit or stockpile from any area; and ensure that water used in any process at a mine or activity is recycled as far as practicable.

These provisions specifically relate to the protection of water resources and they clearly set out further additional liabilities for mines as far as their water resource protection activities are concerned.²¹²

The NWA and accompanying regulations suggest that water pollution should, firstly, be prevented. This is in accordance with the precautionary and preventive

²¹⁰ GN R704 in GG 20119 of 4 June 1999.

²¹¹ Regulation 4(c).

²¹² Contravention of the provisions of the regulations constitutes a criminal offence, in terms of regulation 14.

principles provided in NEMA. Secondly, pollution should be remediated where it has already been caused.²¹³ This would also apply to mines.

5 Concluding remarks and recommendations

The process of mining is, by nature, detrimental to the environment and the courts have highlighted this as a point of major concern. Not only is it a form of unsustainable utilisation of natural resources, but the process of extracting minerals creates large scale generation of waste and pollution. If not managed and effectively governed, mining can leave a path of destruction in its wake, as it mostly does. With the possible negative effects of pollution determined, a further concern is that someone needs to be held liable for the loss of use of the resource or damage to human health or well-being. In order to establish accountability and liability, it is essential that polluters be held liable for the past, present and future polluting activities. In short, when mining activities negatively affect the health and well-being of people and impacts adversely on the entire array of interests safeguarded by section 24 of the Constitution, it is paramount that mines be held liable for their activities, processes and procedures relating to future, present and historic pollution to prevent, minimise and/or remediate pollution caused.

The question which this dissertation intended to answer was whether the current South African legal framework adequately provides for liability provisions regulating prevention, minimisation and remediation of pollution caused by mines. The question was evaluated and investigated in light of the following key topics.

²¹³ Kotzé and Lubbe 2009 *SAJELP* 54.

5.1 *The anomalies of definitions*²¹⁴

Currently much confusion exists in South Africa with regards to the definition of mining waste, the inclusion of residue stockpiles into the definition of waste, and the roles and responsibilities of DMR and DEA with respect to the management of this waste. While there are legal definitions for “waste” in South Africa, there is currently no legal definition for “mining waste”. The vagueness surrounding the definition of “waste” and “mining waste” in the national legislation, results in a lack of clarity with regard to the management and liability of this waste stream. Anomalies with respect to interpretative differences may significantly affect the operation of any legal liability regime.

Although the Waste Act mentions “waste generated by the mining sector”, it is noted that residue stockpiles and deposits are specifically excluded. The NWMS admits that “residue stockpiles” constitute a heterogeneous category of actual or potential waste substances. However, no further explanation is given for what this varied category entails and the only explanation seems to be that DEA will engage with DMR to determine if a memorandum of understanding is possible to “classify” residue stockpiles. What is derived from the latter is that, while the authorities ponder whether and when residue stockpiles should be classified, uncertainty remains about which part of mining waste is regulated under the Waste Act. Since mineral residue is not defined as waste, residue stockpiles are often left unprotected, causing environmental pollution.

It is hoped, that by defining mineral residue as waste, it will assist in promoting re-use where possible; safely storing mineral waste through sound rehabilitation, for possible future recovery; and forcing the inclusion of environmental and social externalities into the cost of mining, to ensure that waste is sustainably managed.

²¹⁴ Paragraph 3.2 of this dissertation.

The question was also raised whether a mining company that complies with environmental regulations and standards set by government authorities should nevertheless bear the costs and liability of its pollution. Pollution should be defined, independent of what may or may not be legal. If polluters are not held responsible for their discharges, even if a government body authorises them, the public would have to bear the costs of clean-up when government regulations are inadequate. To limit the extent and definition of pollution to unlawful impairment will not encourage polluters who are in compliance with emissions standards, to reduce the harmfulness or quantity of their polluting activities even further. Furthermore, the principle of prevention will remain ill served as long as the PPP is impaired by the internalisation of pollution costs. Finally any act of pollution, whether in compliance with emissions standards or not, should be evaluated from the perspective of duty of care owed by the liable party.²¹⁵

5.2 The (un)usefulness of principles²¹⁶

According to the PPP, the life-cycle approach and the normal rules of liability for environmental damage, liability must be placed on the doorstep of the polluter, and not government or the public, since costs for pollution must be internalised and not externalised. The PPP is gainsaid in policy documents as well as legislation, raising the question whether our legislature understands the concept as well as the possible regulatory power of the PPP. Firstly, the *White Paper on a Minerals and Mining Policy for South Africa* allows the State to accept financial responsibility for the costs of mining pollution where no responsible person exists or can be identified to address the pollution. Subsequently, these costs are internalised to the State and the tax paying public.

Section 24P(1) of NEMA recognizes the significance of financial regulatory instruments in accordance with the PPP. Before an environmental authorisation

²¹⁵ De Sadeleer *Environmental Principles: From political Slogans to Legal Rules* 38-41.

²¹⁶ Paragraph 3.1 of this dissertation.

is issued, a mine applying for the authorisation must make a prescribed financial provision for the rehabilitation, management and closure of environmental impacts.²¹⁷ Note the fact that the requirement of providing financial provision is attached to present authorisations and will accordingly only apply where mines have recently sought environmental authorisations, or where they will do so in the future. A worrying question is thus raised whether the current financial provision will be sufficient to adequately address mining pollution which occurred in the past.²¹⁸ The extent and inability of mines to properly deal with the issue of AMD is strong evidence in favour of the argument that these financial provisions are in fact insufficient. Similarly, financial provisions in the MPRDA have been criticised for the way in which they are being assessed and the possibility that it may provide for inadequate coverage of all liabilities.

Secondly, in terms of NEMA and the MPRDA, environmental liability of mines only extends up until the time that government issues the mine with a closure certificate. In addition, the MPRDA states that environmental liability will not necessarily cease or fall away by the issuing of a closure certificate. However, where the mine is absolved from liability by the closure certificate or liability is not transferred to a “suitably qualified” person, environmental responsibility as a minimum will always resort back to the state. The pardon of liability is contradictory to the “cradle to grave” principle, read with the PPP, which holds polluters liable for bearing the financial burden of their polluting activities throughout its life-cycle. This evident contradiction is a critical point of unease since the closure certificate could be used by mines as justification and proof that liability has indeed ended and the cost of pollution is externalised to the state, and thus the tax-paying public.

²¹⁷ According to section 24(P)(3), environmental liability must be assessed annually and be adjusted by the mine where necessary.

²¹⁸ For example the current AMD problem is a result of historical mining practices which occurred at a time when regulation was insufficient and when no financial provisions were made.

Furthermore, in most interpretations of the PPP, the appropriate level of internalisation of external environmental costs is left for the authorities to decide. Thus, the PPP does not necessarily provide guidance on what the acceptable level of pollution should be; on what an appropriate level of pollution prevention is; or how much polluters should in effect pay. This means that weak environmental protection measures are not necessarily inconsistent with the PPP. Also the outcomes of some recent judicial decisions, such as the *Bareki*-case, suggest that the PPP has little practical effect or the ability to hold mines liable in practice.²¹⁹

5.3 Extent, depth and ambit of statutory liability provisions²²⁰

The study provided insight into the expanded scope of environmental liability in legislation. The mining industry is required to comply with a multifaceted network of mining and environmental legislation and there is no shortage of policy and legal frameworks for mining in South Africa. At first glance it may seem that the environmental impacts of mining are fairly well regulated and that the regulatory system could be used to ensure prevention, minimisation and remediation of mining pollution. NEMA, the MPRDA and the NWA provide for liability for historic pollution; criminal liability; the ability to hold directors of mining companies responsible in their personal capacity as well as financial provisions which aim to ensure that money is made available to remedy the effects of pollution. However, on closer scrutiny the consequential holes in the regulatory net are revealed.

Although the MPRDA provides for environmental liability based on broad responsibilities of the holder of a right or permit, in practice, the Act is lacklustre. It is also notable that provisions relating to mine closure do not effectively address scenarios where the effects of pollution may only become apparent after a closure certificate has already been issued. Whilst it is beyond the scope of this

²¹⁹ Kotzé and Du Plessis 2007 *Stell LR* 179.

²²⁰ Paragraph 4 of this dissertation.

study to identify the different categories of liability that may arise from legislative obligations, the discussion on liability that arises from the duties of care that are expressly provided for in NEMA and the NWA show that the legislation does not provide for people to adopt an arms-length approach to the existence of environmental pollution and degradation. Furthermore, the range of people to whom liability can be attached is broader than those included within the scope of the MPRDA.

The inclusion of a duty of care in NEMA and the NWA is considered a valuable component of liability, since it provides a general requirement of conduct which supports a precautionary and risk adverse approach to mining pollution. Furthermore, a duty of care may be implied by the environmental right and defining the duty in legislation, may assist in providing clarity in respect of the nature of the duty. NEMA and the NWA frame the requirements of the duty of care in very general terms with the consequence that there are some uncertainties in respect of the extent of its application to actors during all aspects of the life cycle of pollution. Apart from this, where the duty is applicable to mining activities, a key requirement in NEMA is that, for the duty to be triggered, the pollution or degradation must be “significant”. Although the term is not defined in NEMA, the courts²²¹ have indicated that it will give a broad interpretation to the term. However, it is not clear if all mining activities will meet the requirement of significance and this may result in certain activities falling outside the ambit of the duty.

Directives in terms of section 28(4) of NEMA may create an opportunity for mines to elude liability. The state “may” issue directives where the mining company fails to act in accordance with the duty of care. With government ineffectiveness, inefficiency, lack of knowledge, funding and staff, will they use this discretion to issue directives? Also, there is uncertainty when and to what extent actual liability occurs. Section 28(7) gives discretion to the authorities to act on behalf of the

²²¹ Eastern Cape High Court in *Hichange Investments (Pty) Ltd v Cape Produce Company (Pty) Ltd t/a Pelts Products & Others* 2004 (2) SA 939 ECD.

mining company where they fail to comply with a directive. However, section 28(14) makes refusal to comply with a directive a criminal offence. A loophole is thus created in the mere uncertainty of whether a mine, in fact, refuses to comply and whether failure to comply with prior-notice and direction to the extent of compliance constitutes refusal. The court in the *Stilfontein*-case supported the state's decision to issue a directive; however, this "support" was naysaid by the court in the *Kebble*-case. The latter court held that the statutory directives were unclear and incapable of implementation. Where mines fail to adhere to the directive, government may take action for the mine's cost. These costs will only be externalised back to the state (and tax-paying public) where mining pollution arises long after mining has occurred (for example AMD).

Environmental laws must be well defined for mining companies to operate within these legal boundaries on a range of issues, such as the impact on the environment, how they must try to minimise this impact and how they must rehabilitate the area after mining is completed. It is acknowledged that the issue of liability is critical to success in achieving *inter alia* sustainable development and pollution prevention, minimisation and remediation. What is required is a liability regime that effectively upholds constitutional goals, through stringent liability standards and adequate compensation. It is important to ensure that all legal provisions pertaining to these matters can be easily construed with certainty, and not left open to multiple interpretations.

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