

# “The intricacies and challenges of ensuring safe and healthy mining environments in South Africa”

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## The intricacies and challenges of ensuring safe and healthy mining environments in South Africa

### Abstract

In South Africa, during the apartheid era, the mining sector had records of extremely high injuries and occupational diseases that led to massive death of mine workers who were predominantly Blacks. In the post-apartheid era, measures such as monitoring, inspections, investigations and regulatory interventions have been introduced to identify hazards with the aim of minimizing and eliminating the risk to health and safety of mine workers. However, despite these interventions and measures, the pace of ensuring total eradication of accidents and fatalities is slow and there is a need to accelerate it, as every life is important. This can only be realized if there is substantial improvement in the implementation, enforcement and compliance with legislation, measures and policies that have been put in place to curb accidents, diseases and fatalities in the mining sector. This article examines the effectiveness of the interventions, points out the weaknesses and provides viable solutions for improvement. The article also highlights the importance of trade unions and technologies as catalysts to drive and improve safety standards in the mining environments.

**Keywords:** poor safety standards, interventions, enforcement, zero accident, technology, trade unions, perpetrators, mining environments.

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### Introduction

Undoubtedly sustaining injury or actual death because of accident and fatalities in the mining environments has huge social and economic implications for the victims, the family members and their communities (Hermanus, 2007). The economic impacts are huge, because the injured victims will be off-sick and as such off-work and unable to fend for the family, medical costs will be incurred and during off-sick period, the company will not receive the paid for services of the injured worker and there would be interrupting production (Tuchten, 2011). It is pertinent to point out that while there are huge outbursts when fatalities occurred, in most cases, for every fatality; there are different types of injuries sustained by mine workers serious enough to cause time off-work and other health complications that are often not taken account of (Fox et al., 1987).

Therefore, all interventions and initiatives necessary to ensure robust health and safety standards in the mining environments should be deployed and use to protect and safeguard mine workers (Gunningham,

2007). It is pertinent to point out from the inception that the apartheid laws did not provide for full and comprehensive protection of health and safety standards for all mine workers in the mining industry in South Africa (Martinez-Alier, 2001). Apartheid laws promoted segregation and discrimination against the Black majority in the mining sector (Beinart & Dubow, 1995). While skilled jobs were reserved for the White minority who enjoyed full safety protection of all sorts in the mining sector, the Black majority, mostly unskilled workers did not have any safety protection (Lipton, 1986). As a matter of fact, “the South African apartheid state was blind to damage to Black workers” (Martinez-Alier, 2001).

Blacks’ labor rights were constantly violated by mine owners who assigned strenuous jobs without adequate safety measures to Black miners to save labor costs in order to reap maximum profits thereof (Bendix, 2010). Apartheid government entrenched and practised segregation in mining industry along skill lines (Kros, 2010). Blacks were constrained and restrained to the extent that they were not allowed to access and possess necessary education and skills that will equip them to become experts and professional miners (Lipton, 1986), hence, they remained perpetually unskilled (Moraka, 2013). Whites were remunerated with better wages for performing the same work as Black Africans (Monteith, 2006). Unskilled White workers were given preference over unskilled Blacks, as they were provided with necessary training and skills to improve themselves (Kros, 2010). The beginning of the 1990’s was considered a political turnover in the history of South Africa, because apartheid laws

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were dismantled and eradicated. Thereafter, there was new political horizon in the country which led to the unbanning of political organizations such as African National Congress (ANC), South African Communist Party (SACP), Azanian People's Organization (AZAPO) and so on (Adler and Steinberg, 2000). The unbanning paved the way for all South African to participate in the new democratic processes where citizens have the right to freely organize and form associations and also were able to choose people who will govern and lead the country. To this end, there were series of agitations for the privatization and deregulation of minerals resources by the organized trade unions and political parties in order to improve mineral law and policy, correct the past injustices and ensure that there is transformation in the mining sector, especially in the areas of health and safety standards (Badenhorst et al., 2007). In 1996, a democratic constitution was introduced followed by other policies on safety standards in the mining industry to address and find solution to accidents and fatalities in the sector by improving standards through reasonable oversights on the part of the government to ensuring compliance and implementation (Ramotlhodi, 2014).

While the government and the institutions that have been put in place to ensure high quality safety and health standards in the mining environments are making frantic efforts to reduce mine accidents and fatalities, mining companies still look for short-cuts in their operations, knowing very well that the institutions and the inspectors responsible for oversights will not be physically present at all times of the day to monitor activities within the mining environment. It is, however, pertinent to mention that the principle of cooperate good governance enjoins that mining companies are expected to always do the right thing by ensuring that laws and regulations on safety standards are strictly implemented even if the inspectors are not around (Fernando, 2009). Regulatory interventions play crucial and critical roles in ensuring that defiant mining companies who failed to comply with laws and policies promoting high standards of health and safety in the mining environments are sanctioned and held accountable either criminally or civilly (Fisse & Braithwaite, 1993). The criminal sanctions include but not limited to prosecution and imprisonment imposed on the perpetrator by the competent court, while with civil procedure, fines would be imposed as sanctions.

Although there seems to be reduction in the number of accidents and fatalities in the post-apartheid era, the concern is that the pace of accidents and fatalities reduction is slow and needs to be

accelerated (Hermanus, 2001). Compliance should be reinforced by issuing instructions that will require the mining companies to develop or improve their mining environments within a specific period; non-compliance should result in an order for suspension or revocation of a certificate of competency that might have been issued (Richard, 2016). These measures are catalysts that can be used to accelerate the delivery of high quality health and safety standards in the mining environments.

## 1. The rationale and methodology

Section 24(a) of the Constitution of Republic of South Africa 1996 provides that "everyone has the right to an environment which is not harmful to their health or well-being". This provision guarantees employees a safe working environment and encourages employers to establish a conducive workplace that is not hazardous to health and well-being. Hence, any contravention of this section is violation of the constitutionally guaranteed right to safe environment. Consequently, perpetrators shall be held criminally or civilly liable, as well as required to rectify the damage caused to the people and the environment (Nel, 2007). This article seeks to accentuate the need to accelerate improved safety and health standards in the mining environments by drastically implementing and enforcing the laws and other measures promoting health and safety standards in the mining environments. Therefore, the main objective is to examine the laws and policies that have been introduced to prevent mine accidents, injuries, death at the mines, and strengthen enforcement to deter recurrent accidents and fatalities. The methodology utilized is qualitative approach. Relevant literature on health and safety standards governing and regulating mining environments are reviewed, applied and used to offer new insights and solutions to the problem of slow pace in curbing accidents and fatalities in the mining environments.

## 2. Problem statement

Despite the enactment of various regulatory frameworks to curb health and safety hazards in the mining environments, mine-related accidents, fatalities and diseases incidents continue to occur frequently in the mining environments in South Africa. The reason for this is the poor implementation and enforcement of the health and safety measures by the mining companies and the government, respectively. There is a need to accelerate and upgrade all aspects of safety and health standards in the mining environments in a bid to attain zero-accident and fatality. This is possible if there is holistic implementation and compliance with all the laws and measures that have been

introduced to ensure that sustainable safety mining operations are diligently engaged and embarked on. Defiance and deliberate infraction of the laws by mining companies should be met with appropriate sanctions; their directors and officials should also be held accountable for allowing transgression to happen or continue to happen unchecked. While implementation is desirable and must be used effectively, failure or lack thereof should pave the way for stringent enforcement which should lead to dire consequences.

### 3. Theoretical background

In South Africa, at the dawn of the constitutional democracy, there were series of agitations for the privatization and deregulation of minerals resources in order to improve mineral law and policy to correct the past injustices and ensure that there is transformation in the mining sector, especially in the areas of health and safety standards (Badenhorst et al., 2007). This indicates that the issues of high quality health and safety standards were paramount in the minds of the role players and, as such, the need to prioritize and offer sustainable solutions to the problems. In order to combat recurrent mine accidents and fatalities, the mining companies need to collaborate and partner with the government in facilitating and accelerating the adherence to all regulatory interventions and measures, but some of the companies still continue to fail to adhere to occupational health and safety standards. Consequently, even under the current democratic dispensation, mine workers continue to lose their lives, while others sustained irreparable damages to their bodies as a result of poor implementation and enforcement of health and safety mechanisms. It is worthy to point out that the purpose of ensuring proper and adequate observance and compliance with safety measures in mining environments is to provide maximum protection for the mine workers in order to prevent mine-related accidents, fatalities and diseases, but this lofty purpose is being undermined by some of the mining companies thereby contributing to slow pace in radical eradication of mine accidents and fatalities (Braithwaite, 1985).

One of the main aims of the enactment of health and safety laws and policies was to stimulate protection of health and safety standards of the mine workers. Owing to continuous mishaps and disasters in the sector, the government has taken a firm stand on mining safety and has articulated an obligation relating to expanding of safety for all miners (Zuma, 2009). The government said that “we need to vigorously support and entrench a culture of zero harm in this industry, the safety record of our mines

has become a central issue that will be placed under the scrutiny of government” (Zuma, 2009). After the recent dastardly mining accident that occurred in the Lily Mine, the Association of Mineworkers and Construction Union of South Africa (AMCU) said the occurrence of accidents happening in the mining environments is dire and that strengthening compliance to the health and safety regulations in order to stop mining disasters is incontestable. This is said against the backdrop of noticeable shortages of necessary rescue equipment and manpower at the scene of accident sites for the purposes of rescuing miners in case of accidents and fatalities. Dixon (2013) admonished that if interventions are not accelerated, safety situation is going to get worse in the mining environments. Over and above, the level of technically skilled personnel in dealing with mine safety has also been declining, making the mining environments and the employees vulnerable to all sorts of mishaps and disasters (Frankel, 2013).

Another major concern is the series of unethical operational conducts and practices by some mining companies (Jenkins & Unies, 2001). There have been series of allegations of waves of short-cuts and cut-backs on the part of some of the mining companies and the reengineering of mining companies to cut costs to maximize profits, which will eventually benefit the mine owners. The vulnerable employees, particularly the rank and file workers who go underground of the earth, suffer harm, diseases and injuries (Stephens & Ahern, 2001). It has also been observed that training on safety standards is also poor, because mine owners do not want to expend money on training even though it is mandatory by law (Hentschel et al., 2003). As part of the solution to the problem of inadequate training, mining companies are encouraged to hire technically skilled staff, especially students, who studied mining related courses at the higher education institutions. These students however still need to be subjected and exposed to, constant, practical training. The overall benefits of constant training to the employer and employees is properly articulated, thus, “safety standards could be improved through inspiring mine owners to bargain methods of training staff in a way that makes them want to be part of wide initiatives to diminish health and safety related incidents both at company and on an industry-wide level” (Pienaar, 2014).

In the same vein, the courts in South Africa have taken the issues relating to poor safety and health standards in the mining environments seriously, and are being very proactive in sanctioning any erring company and official liable for transgressing the health and safety standards, laws and measures. For

example, in the case of *Mankayi versus AngloGold Ashanti Ltd* (CCT 40/10) /2011/ ZACC 3; 2011 (5) BCLR 453 (CC); 2011 (3) SA 237 (CC); /2011/ (6) BLLR 527 (CC); 2011 (32) ILJ 545 (CC) (3 March 2011), Mankayi who was employed by a mining company, AngloGold as an underground mine worker contended in court that during his employment, he contracted occupational diseases in the form of tuberculosis and chronic obstructive airways, which rendered him unable to work as a mine worker or in any other occupation. He instituted an action for delictual damages against AngloGold on the basis that the company owed him a duty of care arising under both common law and statute to provide a safe and healthy working environment.

AngloGold opposed Mankayi's contention, on the basis that his "particulars of claim" raised "no cause of action", since section 35(1) of COIDA does not include the right of the employees to make a claim in terms of common law against their employers. The Court held "that if an employee contracts a disease at a controlled mine which is compensable, that employee is obliged to claim compensation". The Court's decision in this case is very remarkable in the sense that it can be used by mineworkers or their dependents "who, as a result of workplace accident or work-related disease are injured, disabled, or killed, or become ill, to take necessary steps to seek compensation accordingly". This is against the backdrop that the laws and measures on health and safety are meant to give content to the employer's duty of care and to enhance accountability by providing for a range of criminal and civil responsibilities against the erring company and its officials (Taylor & Emir, 2015).

#### 4. Literature review

South African mining sector has been a key role player in the country's economic growth in the global economic competitiveness (Schwab & Sala-i-Martin, 2010). However, occupational injuries and fatalities resulting from mining accidents and diseases have a direct or indirect impact in the country's economic progression in the form of occupational accident costs, which include among others compensation costs, workplaces damages costs, as well as intermission of production costs (Hilson, 2002).

One of the ways of ensuring good safety and health standards is the implementation and the enforcement of the law in the working environments in the mining companies (Brauer, 2016). In 1996, Mine Health and Safety Act 29 of 1996 (MHSA) was introduced to safeguard health and safety of persons

working in the mines. The Act was also intended to provide for radical implementation of health and safety measures, such as monitoring systems and inspections, investigations, and employers' and employees' obligations to ascertain risks and manage, reduce and eradicate the threat to health and safety of mine workers (Tuchten, 2011). A troubling concern is that most mining companies are still not complying and have been found defective in many cases as it happened in the recent accident in Goldfields Lily Mine in Barberton in Mpumalanga, South African (the mine that deals with gold), where mine workers were trapped underground in the container in which they were working (Tandwa, 2016). This showed that mine-related accidents continue to be major problem in the mining environments (Ramotlhod, 2014).

Although some mining companies have put up defences for the poor compliance with safety standards such as the insufficient financial resources to implement the provisions in the MHSA coupled with inappropriate knowledge about training necessities, as well as appointing competent personnel to occupy important positions, on a yearly basis, these mining companies declare huge dividends and profits and, as such, it is expected that reasonable chunk of the profits should be ploughed back to the business especially to fund the aspects of health and safety standards. Another major setback is that the mining companies are failing to meet their obligations, as they are reluctant to provide necessary skills and training to mine workers as mandated by the Mining Charter so as to improve capacity (Moraka, 2013). This capacity gap is negatively impacting health and safety standards in the mining environments. Collective efforts between the employers, employees and government are required to transform implementation and enforcement of health and safety standards in the mining sector (Quinlan, 1999). Consequently, there is a need to improve and strengthen good practices in order to ensure sustainable safety standards in the mining sector (Aalders & Wilthagen, 1997). The pace of implementation should be accelerated and there should be a concerted effort to improve and update ability to tackle any perceived danger and take proactive steps to ensure they are taken care of. To this end, collective efforts entail that the employers, employees and the government collectively are obliged to work together to achieve full protection of mine workers, where employer must continually ensure a safe working environment; on the other hand, employees must adhere to the instructions of the employer with regard to safety. The Department of Mineral Resources acting through the Minister must ensure that the provisions set out by the

statutes are fully complied with. South African mining companies should adopt ethical leadership strategy. The reason or benefit for the ethical culture is that the management are required to ensure that the sector is run ethically to assist the sector to achieve zero harm to mine workers (Savitz, 2013). There should be collaborative and partnership approaches on the parts of all the stakeholders and role players come together to discuss the ways in which accidents and fatalities in the workplace can be prevented. Better risk management, collaborative approach and leadership will play a critical role in ensuring prevention of accidents and fatalities. And more critically, should there be any occurrence of accident or fatality, quick response through the emergency interventions should be swift and able to rescue the affected mine worker. More importantly, violation of the regulatory mechanisms should be met with the imposition of criminal penalties, as well as the imposition of severe fines for not complying with the laws that have been put in place (Richard, 2016).

## 5. Facts and data on mining fatalities and deaths

**5.1. Facts.** In South Africa, according to the Department of Mineral Resources, the first recorded mining accident was in 1904, since then, more than 54,000 mine workers have lost their lives in mining accidents (Patel, 2012) till date. Achieving zero-fatality is becoming increasingly difficult even in the 21<sup>st</sup> century as mineworkers continue to die at the mines. In 2014, the numbers of fatalities in the different mines is as follows: “gold (44), platinum (15), coal (9) and other mines (16)”. This is a cause for concern, although the number of fatalities reduced in 2015, it is still worrisome that, seven mineworkers died from mining related accidents.

The statistics have suggested that major contributors of fatalities in the mining sector are: “general classification types of fatalities (35%), falls of ground (30%) and transportation fatalities (17%) (Ramotlhodi, 2014). The “general classification types of accidents include: inhaling dangerous fumes, being struck by an object and falling from height” (Ramotlhodi, 2014).

**5.2. Data.** The mining sector has made frantic attempt to reduce fatalities in the sector and in 2003, the goal that fatalities should be down by 20% reduction in fatalities per annum was set so as to reach levels comparable to those of companies in Australia, Canada and the US. As at the time the agreement was concluded in 2003, 270 deaths were attributed to mining accidents. In 2007, the total fatality of mine workers, excluding illegal mine workers, was 221. From the data, it is apparent that

even though an agreement was reached to bring down fatalities, the pace is very slow. The sector only reduced fatalities by 18% in 4 years. This is very disheartening. This presupposes that the measures and interventions introduced are not producing the desired results. The safety audit showed that total fatality of mine workers, excluding illegal mine workers in 2008 was 168. Statistically speaking, the target of 20% reduction annually was met in 2007 which was  $221 - 168 = 53$  which is more than 20% reduction, it is our considered opinion that more can still be done in order to attain zero percent fatality. Though this is ambitious, it is realizable if all parties strictly follow the rules and regulations. As of 2013, there have been “a slight increase in the number of silicosis cases from one thousand four hundred and twenty (1 420) in 2012 to one thousand four hundred and thirty cases (1 430)”. Also “Noise-Induced Hearing Loss cases also increased from one thousand and seventy five (1 075) during 2012 to one thousand three hundred and eighty nine (1 389) in 2013. And the gold sector continues to report a high number of occupational diseases than all the other sector”.

These figures show that although there is a decline in fatalities, the decline is not consistent and rapid enough. It also suggests that the pace of acceleration of safety standard is very poor which is confirmed by the fact that safety compliance in South Africa was below target at just 66%.

## 6. Accelerating implementation of health and safety standards

It has earlier been alluded to that prior to 1994, apartheid laws were discriminatory to black Africans and favoured the white minority. In order to correct and overturn past injustices such as the legacy of apartheid on the health and safety of mineworkers, one of the first steps taken in 1994 was to conduct a comprehensive review of the state of health and safety on the mines, and provide holistic and comprehensive recommendations that will ensure equality in all aspects of mining activities, particularly safety and health standards (Ramotlhod, 2014).

The old Minerals Act focused mainly on safety matters in the mining industry, but did not accentuate on the occupational health of mineworkers. The lack of emphasis on the promotion of the health of mine workers led to, amongst others, enactment of a new MHSA, which started operating from January 1997 (Ramotlhod, 2014). The MHSA established a council known as Mine Health and Safety Council (MHSC) that contemplates the status of health and safety in the

mining sector, recommends policy and legislation, commissions' research, and offers suitable advice to the Minister of Mineral Resources. In addition, different types of legislation such as the Minerals Petroleum Resources and Development Amendment Bill, 2013 (MPRDAB), Compensation for Occupational Injuries and Diseases Act, 1997 (COIDA), Occupational Diseases in Mines and Works Amendment Act, 2002 (ODMWAA), Mining Charter, 2010, and the Constitution of the Republic of South Africa, 1996 were passed to enable transformation and improvement of the safety standards in the mining sector. Regardless of enactment of these statutes, mine accidents and diseases continue to have negative impact in the mining sector and the nation. As part of the solution, therefore, the laws and policies governing workplace need to be effectively implemented to advance healthful industry relations, favorable working conditions, promote fairness, as well as develop skilled workers through proper training. Also crucially essential is that according to The National Occupational Health and Safety Policy, 2003, enhanced working conditions are essential to make sure that there is high level of labor production, improved value of work, better relationship between the employer and the employee and compliance with variety of laws, policies, regulations and standards of safety. This article accentuates the need to accelerate the pace of implementation and delivery of high safety and health standards in the mining environments. Furthermore, it showcases the potentials of regulatory interventions and measures to quicken and accelerate the pace to achieve sustainable outcomes as discussed below.

**6.1. Mine Health and Safety Act, 1996 (MHSA).** The MHSA is very helpful in maintaining health and safety standards for mine workers. According to MHSA, the Act is aimed "to ensure owner responsibility for health and safety through creation of codes of practise, training, identifying potentially hazardous factors, investigating said factors, employing hygienists for the industry, and founding methods of medical attention and recording for the site". It is intended "to safeguard the rights of employees to refuse or move away from areas which are unsafe or potentially unsafe and to establish the Inspectorate of Mining Health and Safety" (Mine Occupational Health and Safety Summit, 2016). Furthermore, in terms of the requirements and regulations of the MHSA, employers are obliged to inform respective Regional Principal Inspectors of certain accidents and harmful occurrences that take place at a mine (Department of Mineral Resources, 2011). In order to improve the working condition in

South African mining environments, the Mine Health and Safety Inspectorate had opted to gather comprehensive data for each accident in order to use them for investigation purposes (Department of Mineral Resources, 2011). The information is recorded into the South African Mines Reportable Accidents Statistical System from which the statistics are evaluated or analyzed (Department of Mineral Resources, 2011). This data assist mining enterprises to take well-informed decisions to avoid occurrence of mining accidents and to fashion the means in which they will protect workers from contracting diseases such as silicosis and tuberculosis (TB) amongst others. The Inspectorate are enjoined to work together with the sector and mine unions to decrease the numbers of mine accidents. The interested relevant parties must pledge themselves to constantly decrease fatalities in the sector through proper co-ordination and consultation with one another.

**6.2. Compensation for Occupational Injuries and Diseases Act, 1993 (COIDA).** The object of the Act (COIDA) is "to provide for compensation for disablement caused by occupational injuries or diseases sustained or contracted by employees in the course of their employment, or for death resulting from such injuries or diseases; and to provide for matters connected". In terms of section 8 of COIDA, "workers give up the right to sue for damages and in return be given compensation, whether or not there was negligence". On the other hand, COIDA provides what is called a no-fault compensation for workers with occupational injuries and diseases. The phrase no-fault means that a worker is entitled to compensation whether or not his injuries are as a result of the negligence of the mining company or any other party. It is recognized that safety and health of employees form part of human security and it is a basic human right, therefore, mining companies must commit to provide for the health and safety of their employees, as well as others who may be affected by mining activities (Sibande, 2013). If an employee dies or is disabled because of mining accident, in terms of section 22(1) of COIDA, the dependents will be eligible to benefit. According to the Compensation Fund Preliminary Report 2nd Draft 2005, the legal principles called no-fault compensation entails that an injured party is eligible to claim for damages devoid of having to demonstrate the negligent conduct of any other person for the accident. However, the claim is based on the condition that the dependants of the diseased miner would have to produce prima facie evidence that proves that they were depending on the diseased miner for support or subsistence.

**6.3. Occupational Diseases in Mines and Works Amendment Act, 2002 (ODMWAA).** The Act oversees the constant intensive care, surveillance and assessment of both former and current mine workers for probable compensable occupational lung diseases. The surveillance of current mine workers is the responsibility of the employer as required by the Mine Health and Safety Act that came into force in 1997. This Act provides opportunity for both former and current mine workers to lodge an application claiming for damages that might have arisen from silicosis and pneumoconiosis caused by mining dust or any other mine-related incident. Similarly, the Compensation for Occupational Injuries and Diseases Act, 1997 also gratifies mine workers a chance to claim for compensable damages from mining companies. The Act states in section 32(1) of the Amendment Act, 2002 that “any person who works or has worked at a mine, or any other person acting on behalf of such a person, may at any time apply to the director for a medical examination of such person for the purpose of determining whether such person is suffering from a compensable disease, or, if he or she has previously been found to be suffering from such a disease, the degree of such disease”. Therefore, section 32(2)(a) of the Amendment Act, 2002 provides that “upon receipt of such application made by any mineworker, the director shall, subject to the provisions of subsection (3) of the Act, cause the person concerned to go under medical examination as soon as possible; hand over to the certification committee a full report on the state of the health of that person in terms of section 32(2)(b) of the Amendment Act, 2002, and cause such further examinations, tests and observations to be carried out as the director may deem necessary or as the certification committee may require in accordance to Section 32(2)(c) of the Amendment Act, 2002”. Finally, according to section 32(3) of the Amendment Act, 2002. “the director reserves the right to reject such application if the person concerned was medically examined under this Act within the period of 24 months immediately preceding the date on which such application is received, unless the medical practitioner has supported such an application in writing”.

The ultimate aim of both ODMWAA and COIDA is to give current and former mine workers who are suffering from mining related diseases such as silicosis, tuberculosis and pneumoconiosis an opportunity to institute an application claiming compensation for the damages. The ODMWA is not limited to damages only, but it also covers for “post mortem benefits (through the National Institute for Occupational Health’s Pathology Section) for mine

workers if an occupational disease is found, even if it was not the cause of death. The ODMWA also pays lump sum benefits founded on the level of impairment and does not make any further pension provision”. Actually, diseases covered by ODMWA “are those that have been determined to have been contracted while executing work that is hazardous in mines or similar work and that consist of pneumoconiosis, tuberculosis, permanent obstruction of airways and progressive systemic sclerosis”.

This was evident in the case of Nkala versus Harmony Gold Mining Company Limited, where the applicants suffered from silicosis disease and proceeded with the class action against Harmony Gold Mining Company Limited claiming for compensation. The court ruled in favor of the applicants and granted the certification to proceed with the class action. Hence, the significance and the relevance of the judgment in this case is that it gives the former and current mineworkers ample opportunity to approach any competent court of law alleging the infringement of any right, as well as accessibility of claiming for damages resulting from such infringement.

**6.4. The Mining Charter, 2010.** The Amendment of the Broad-Based Socio-economic Empowerment Charter for the South African Mining and Minerals industry, 2010, also known as the Mining Charter, is a mining tool introduced by the government and designed to promote sustainable development, growth and radical transformation in the mining sector. It is definite embracer of both section 9 and 100(2) of the Constitution of 1996 and the Mineral and Petroleum Resources Act, 2002, respectively.

Mining charter plays a vibrant role in upgrading safety and health performances in the mining sector by “implementing management systems focused on continuous improvement of all aspects of operations that have a significant impact on the health and safety of employees, contractors and communities where mining takes place; providing all employees with health and safety training and require employees of contractors to have undergone such training; implement regular health surveillance and risk-based monitoring of employees”.

## 7. Other measures

While the enforcement of mine safety laws and measures is meant to accelerate the pace of improvements in the mining industry (Robert & Albritton, 1979), the potential of modern technology, trade unions and training are also hugely significant, because they are tools that can be effectively deployed and used to complement radical acceleration and improve safety in the mines (Gunningham, 2008).

**7.1. The potential of technology.** Technology has the potential to lower death and injuries in mines considering the intrinsic roles technology is playing in all aspects of human lives (Douglas & Wildavsky, 1983). Therefore, the application of the existing and affordable accident prevention technology is important for safety in the mines (Ashford & Caldart, 1996). Recently in the Lily mines, three miners were trapped and subsequently died, because there was lack of technology that could have been deployed to rescue them. The unavailability of accident rescue and recovery technologies deprived them the chance to survive the accident. Therefore, while enforcement and punitive sanctions are potent mechanisms for ensuring safety standards in the mines, the investment in and deployment of safety technologies are critically important in ensuring high standard safety and effective rescue operations means in the mining environments (Gunningham & Sydney, 2007).

Ensuring safety standards in the mines has strong link to the use of modern technology, as well as setting performance standards such as acceptable ambient dust concentration in a mine environment, which will motivate the industry to adopt modern technologies to meet the standards. The use of modern technology for improved safety measures is mutually beneficial to both the employer and the employees, because they make the mining companies operate more sustainably and responsibly and also protects the mineworkers. Therefore, technology is intrinsically linked to safety standards in the mines, as it has the potential to prevent accident and to rescue trapped or injured workers during operations (Yenchek et al., 2012).

**7.2. Trade unions.** South Africa has robust and vibrant trade unions in all sectors (Buhlungu et al., 2008). The mining sector prides itself as the most referred sector in the country (Flatters & Stern, 2008) because of the role of mines labor unions (Webster et al., 2011). South Africa has vast mineral deposits throughout its landscape that spread all over the beneath of the land (Davies & Mundalamo, 2010). Mining industry is one of the major employers of labor and, as such, it also has very formidable, well organized trade unions that negotiate, protect and defend the rights of their members. Because these unions are highly unionised labor organizations, they are able to intervene and reduce accidents and fatalities in the mines by demanding for the implementation and enforcement of safety standards in the mines. They also monitor and report accidents to ensure against under or non-reporting by the mining companies.

The unions are known for putting great pressure on mining companies' management for safer and healthier mines through bargaining and discussing safety and health issues in the union meetings. The solidarity in the mining sector is profound and this has made the organized trade unions continually demand for conducive safe and healthy work environment (Buhlungu & Bezuidenhout, 2008). However, more still needs to be done, because accidents and fatalities are still occurring frequently. Most times, the mine workers are off-sick because of the impact of the unhealthy mining environments.

**7.3. The significance of improved training and skill development.** Improved training is a catalyst to a considerable reduction of mining accidents and fatalities (Lincoln et al., 2013). Despite the introduction of numerous laws to promote training and skill development in the mining sector, mining companies are still lagging behind in ensuring that this objective is achieved. It is pertinent to point out that the underprivileged Historically Disadvantaged South Africans (HDSA) are not educated enough and lack necessary skills and qualifications to meet the average standards for permanent and better employment in the sector. This skill gap continues to disadvantage the underprivileged and it seems there is no immediate solution to this. Skill shortage is one of the challenges confronting mining fraternity and it is impacting on growth in the sector (Mohr-Swart, 2008). Therefore in order to address the issue of skill shortage, the Skills Development Act, 1998 (SDA) implementation needs to be accelerated to play a critical role in ensuring that skills development is accomplished and advanced. In term of section 2(1)(b), the purpose of SDA is to "increase the levels of investment in education and training in the labor market and to improve the return on that investment". It is in this regard that the Act encourages the employers to provide employees with necessary training to procure skills, knowledge and expertise that will match the standard of employment criteria. According to Sharma (2015), everyone knows safety training is important. There is need to constantly emphasize hazard identification and provide incentives that will keep workers interested and committed. Maintenance and compliance are most imperative dynamics to mining operations and cannot be neglected (Gunningham, 2007).

Similarly, Adult Basic Education and Training (ABET) can contribute in ensuring that the aged miners are provided necessary skills, knowledge and expertise, because safety in the mining industry is the right of all employees whether aged or not. The government has clearly indicated that it is very

important to intensely back-up and establish a culture of zero harm in the sector (Douglas & Wildavsky, 1983). As part of the solution to the problem, basic education training program will also assist the aged miners to properly operate the machinery in the sector and be able to read the caution or warning signs placed in the workplace (Morgan, 1998). Training of employees will play a critical role in reducing mining accidents, and consequently improve social and economic growth. Therefore, there is need to strengthen the use and implementation of the Mining Charter, 2010, which was enacted to promote sustainable development, growth and radical transformation in the mining sector.

## Conclusion

South Africa is one of the countries that has cluster of laws and policies that have been put in place to ensure health and safety standards in the mining sector. Poor implementation and ineffective enforcement of these legislation and policies, however remain a huge predicament in the sector. Thus, effective improvement in how mining companies conduct their businesses and operations

is important in the realization of quality safety standard. Zero accident is possible if there is holistic adherence and compliance with the laws and measures. More importantly, the institutions that have been established to ensure and enforce compliance should not hesitate to hold accountable any erring mining company and official for transgressing the laws on safety standards measures. Furthermore, the lack of prominent and consistent inspection of mines, which is caused by untrained or incompetent inspectors, leads to poor implementation and enforcement of safety measures. As part of the solution to accelerate the pace of improvement in the safety standards and as mandated by the Mining Charter and other related legislation, the mining industry should invest sufficient funds that will assist in providing modern technology safety measures, as well as necessary skills and training. Ensuring and maintaining a safe and healthy mining environment requires the government, mining companies, employees, stakeholders and role players to work collectively to advance the health and safety standards in the mining environments.

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