“Effective implementation of Environmental Management Plan for sustainable mining”

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Effective implementation of Environmental Management Plan for sustainable mining

Abstract

This article examines the need of the environment protection in the process of mining operations. It highlights the importance of sustainable mining in order to ensure that mining is conducted sensibly and responsibly. It rigorously examines the utilization of a comprehensive and holistic Environmental Management Plan (EMP) which is one of the environmental tools that has the potential to produce environmental sustainability in mining areas and communities. It accentuates that the EMP should contain detailed activities that will be carried out throughout the mining and post mining operations. It also discusses how the interest of the people and the environment can be protected and preserved. It enlightens on the importance of compliance and implementation of the EMP for sustainable mining. It proves that non-compliance will marginalise the poor vulnerable communities and degrade the environment within the area where mines are based. It details the regulatory interventions that have been put in place to support the EMP and accentuates the need for accountability and sanctions for non-compliance with the environmental legislation. It submits that mining companies must be compelled to comply and implement the EMP as part of precautionary measures to avoid environmental and land degradation. The EMP is a tool that should be used to promote environmental sustainability in mining operations.

Keywords: environment, Environmental Management Plan, degradation, compliance, mining, sustainable mining, consequences, communities.
JEL Classification: Q51, Q56, Q58.

Introduction

South Africa is well-endowed with natural mineral resources spread throughout the country's landscape in different communities and areas (Fick, 2011).These resources are being extracted by mining companies and revenue from them is being used to execute different infrastructuresfor socio-economic and developmental purposes in the country. However, the concern is that multiple reports initiated by the government and non-governmental organizations have confirmed that the activities of the mining industry are contributing to environmental and land degradation and impacting negatively on the health of the people in the communities and areas in which they operate (Epstein and Buhovan, 2014). These negative impacts are reversing the gains being made from the mining of the natural resources by threatening human health and environmental and land sustainability. Azapagic (2004) points out that "the mining and minerals industry faces some of the most difficult sustainability challenges of any industrial sector."

The current trend in any country either by the government or the mining companies is to ensure that sustainable mining is pursued vigorously as opposed to careless or reckless mining activities that harm and degrade the environment (Rosenbum, 2013). To this end, any mining company that fails to integrate or include sustainability as part of the company's corporate mission, vision and operation is considered to be involved in anti-sustainable mining and should be ready for the consequences and repercussions for failure to adhere to or incorporate sustainability in its operation. It is against the backdrop of this that mining companies should take both voluntary and statutory regulatory precautionary measures and the responsibility to protect the environment and the people from harmful substances in the areas or communities they operate while carrying out their mining activities (Fick, 2011). The most potent tool that can ensure sustainable mining is sustainability of Environmental Management Plan (EMP) that contains measures aimed at protecting, rehabilitating and restoringof the environment to its productive state before, during and after mining (Slocombe, 1993).

For purposes of ensuring sustainable mining (Dashwood, 2012), EMP and Rehabilitation and Environmental Impact Assessments have been introduced through legislation and policies as tools that mining companies should utilize to ensure that hazards to the environment are reduced in mining operations (Wahaab, 2003). The EMP's purpose is to ensure that the environment is rehabilitated and sustainable in the sense that it perpetually continues to be beneficial and useful to human needs (Lein, 2008). It is therefore imperative for the mining companies to have EMP in place at all times (Brisman, 2008).

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The environment is imperative to human existence because it provides food, water shelters and other socio-economics human basic needs (Lein, 2008). If the environment and land are harmed and degraded as a result of mining, the people and other living beings will suffer hardships (Gray, 2000). It is against the backdrop of this, thatthis article makes contribution to the body of knowledge by analyzing and showcasing the probative and immense worth and value of EMP in sustainable mining operations. The aim of this article is to argue for the radical compliance and implementation of the EMP before, during and after mining. The objective is to accentuate the importance of EMP and enlighten on the existing regulations tools that support EMP to protect the environment and land from being harmed and degraded in mining operations.Bounteous legislation, regulations and policies have been promulgated to promote compliance and implementation of the EMP and protection of the environment from degradation from these operations. Notwithstanding this, majority of mining companies are failing to comply and implement mining regulations such as the EMP that have been legally prescribed as a protective environmental tool and mechanism to restore and rehabilitate mines. Consequently, the environment continues to suffer degradation and this adversely affects human beings and the communities they live in (Brulle and Pellow, 2006).

1. The importance of planning in mining operations

Mining contributes to the economic growth of South Africa (Stacy, 1999), but the concern is that "man in his quest for better standard and quality of life has allowed all other considerations to take a back seat and this has accelerated the process of environmental degradation and has begun to threaten the earth's delicate ecological balance through which life on this planet survives. It is therefore necessary that the consideration of the environment, economy and performance should become the real basis for sustainable development if life on our planet is to survive forever"(Misra, 1996).It is therefore important to take notice of the devastating impacts and consequences of mining on the natural and human environment. It is incumbent on decision-making of the mining companies, the government and the community to ensure that everything is done to minimise environmental degradation and health hazards (Dashwood, 2012). Even though "mining companies are not subjects of international and human rights treaties, the numerous voluntary or quasi-voluntary initiatives undertaken by the private sector, alone or together with states and non-governmental agencies at the global level assume a degree of importance in the global push to promote sustainable mining activities" (Dashwood, 2012). Notwithstanding, the economic benefits that comes with mining, environment protection should be prioritised, and as such planning becomes imperative (Riley, 2016). According to Lein(2008) "environmental planning is uniquely concerned with understanding the connection between human landscape and the ecological and physical processes that directly and indirectly sustain our existence." There is therefore need for proper planning that will resonate with one of the critical findings of the Brundtland report which stipulates the "need for the right balance to be struck between the protections of the environment on the one hand and development needs on the other" (Blowers, 2013). It is common knowledge that the essence of embarking on any business venture is to make profit but what is also important is that such profit should not be made at the expense of the environment (Morrison-Saunders et al., 2012). Admittedly mining companies are in business to make profit (Andrews, 1998). They however still need to plan and observe the regulations protecting the environment (Blanco and Rey-Maquieira, 2009). This is the path to make sustainable profit (Graham and Woods, 2006). It has been observed that various devastating environmental impacts of mining activities increase the financial burden to the company especially if found wanting by a competent tribunal or regulatory authority (Dashwood, 2012). This said, if there is no restrain and self-control, there will be consequences which might erode the profits that have been accumulated for years.

It is important to point out that planning is the opposite of improvising. In mining operation, if there is no proper planning, there is tendency to improvise or second guess and take a wrong approach which will fail and hurt the environment and the community (Braithwaite, 1985). Planning is considered as the "ability to take proactive decision-making where the risks and uncertainties of the future are minimised and a course of action or programme takes form that facilitates the wise allocation of important and potentially scarce resources" (Lein, 2008). Planning will reveal immediate and future potential risks and it provides means of minimising the risks.

All hands need to be on deck in order to promote a clean environment. There are environmental activists in South Africa who are in the forefront of disseminating information to the public about the

harmful practices of mining companies. Through their coordinated effort, governments are now intervening and bringing pressure to bear on polluters and environmental degraders (Desai and Jarvis, 2012). The importance of education and consultation should not be overlooked and should be incorporated and addressed in the EMP. The EMP must address all environmental and human disturbances. In the words of Hilson and Murck (2002),"with improved planning, implementation of sound environmental management tools and cleaner technologies, extended social responsibility to stakeholder groups, the formation of sustainability partnerships, and improved training, a mine can improve performance in both the environmental and socio-economic arenas, and thus contribute enormously to sustainable development at the mine level."

Engagement with the community is also of utmost importance. According to Azapagic (2004) "in order to continue to mine and operate, the company must engage with different stakeholders and role players within the community in order not to experience disruption and continue to operate sustainably."

2. Environmental Management Plan (EMP)

The EMP is one of the potent tools "for specifying how the mining or prospecting operation's environmental impacts are to be mitigated and managed" (Mhlongo, 2011). The EMP, once accepted by the relevant authorities, becomes an enforceable blueprint for managing impacts on the environment. In terms of both Mineral Petroleum Development and Resources Act and National Environmental Management Act, EMP must "develop an implementation action plan (including specific responsibilities and timelines) to achieve goals and objectives of environmental management during mining construction, operation and closure; Develop a schedule to implement mitigation measures for prevention, management and remediation of impacts (describing how pollution, environmental degradation and/or migration of pollutants are to be controlled, contained or remedied); Identify appropriate mitigation measures for potentially significant impacts and identify appropriate mitigation measures and environmental management objectives."

The EMP should also "include an environmental awareness plan and describe the manner in which the applicant intends to deal with the action, activity or process which causes pollution or environmental degradation in order to contain or remedy the cause of pollution or degradation and migration of pollutants in terms of Section 39 of the Mineral and Petroleum Resources Development Act 28 of 2002." The EMP is aimed at assessing, identifying and ranking the impacts the proposed mining activity will have on the environment and the lives of the community members where the operations are going to take place. Further, its goal is to identify the suitable measures to manage, avoid or mitigate the impact the mining activities will cause to the environment and mining community concerned. Therefore, it is submitted that the EMP will assist in reducing harm and hazards of mining activities if well implemented.

3. Fostering a sustainable mining environment

A sustainable environment is achieved when the relationship and interaction of human beings with the environment is mutually beneficial as opposed to harming the environment whether in the short or long run (Kopelus, 2002). To this end, any activity that will harm or pollute the environment should be discouraged and totally rejected. Inflicting harm to the environment should be met with stiff and punitive sanction that it deserves. According to Veigaet al.,(2001) in order "to be considered as sustainable, a mining company needs to adhere to the principles of ecological sustainability, economic vitality and social equity. These principles apply over a long time span, covering both the lifespan of the mine and post-mining closure. The legacy left by a mine to the community after its closure is emerging as a significant aspect of its planning. Progress towards sustainability is made when value is added to a community with respect to these principles by the mining operation during its life cycle."

According to the World Commission on Environment and Development (WCED 1987), "the phrase "sustainable development" refers to the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Beckenstein et al 1996)"This is also often called intergenerational equality. The general idea of sustainable development is that people should benefit from the natural resources amongst them and not only those who are alive today, but also the future generations.

The link between mineral extraction, EMP and sustainability is well articulated by Hilson and Murck (2002) and they asserted that "from these numerous perspectives on sustainable mineral extraction, minerals and metals recycling, environmental management, and social performance, is how sustainable development applies to mining companies themselves, and what steps a mine must take in order to improve the

sustainability of operations. Since mining processes have the potential to impact a diverse group of environmental entities, and are of interest to a wide range of stakeholder groups, there is ample opportunity for the industry to operate more sustainably."

Undoubtedly, the environment, ecosystem and land of the communities where mining operations are carried out are being degraded and destroyed (Viega et al., 2001). This is as a result of poor implementation and compliance with the environmental assessments, planning and programmes. If these programmes are implemented timeously, environmental damage will be reduced. To ensure that there is strict compliance with the EMP, the government must, prior to the issuing of mining authorisation ensure that the company has complied, and put in place plans for the rehabilitation of the land.

4. Methodology

The research methodology in this study is non-empirical qualitative approach generally acceptable in legal research activities (Taneja et al., 2011).Pursuant to this, existing literatures were utilised as legal sources to analyze issues raised in order to come up with novel opinion on the issue. The current article is also library based and relies heavily on scholarly legal lexicons including, but not limited to textbooks, articles, case law, legislations, regulations, previous works relevant to planning and management of mining operations in sensible and sustainable ways and manners.

5. Literature review

Mining activities in South Africa are adversely affecting the human life and the environment where the mining companies operate (Kopelus, 2002). One of the reasons for environmental harm and degradation is failure to implement and comply with the prescribed EMP and other tools such as environmental impact assessment and rehabilitation measures set out in different instruments to safeguard the environment. It is important to point out that even if a mining company has this plan in place as mandated by the law and regulations, the compliance and implementation of these tools by the company is often poor or non-existent in most cases. The impact and effect of this is that it makes a healthy environment unsustainable in all aspects and respects. Escobar and Vredenburg(2011) observed that the mining companies must ensure proper environmental management practices in order to minimize or prevent the environmental degradation. Moss et al., (2011) pointed out that "robust intervention in terms of plans and programmes must be implemented by the mining companies to ensure that environmental hazards or degradation are reduced if not totally prevented." Langston (2008) is of the view that "one of the ways to effectively and efficiently manage the environment is to apply and use the 'best practices' approaches in order to ensure environmental justice where the interest and rights of all the parties are observed and protected especially the vulnerable, the poorest of the poor, and the disadvantaged people and communities." This is paramount because the people and community who will not have direct benefit of gains of the mining are usually the hardest hit. Most times they are made perpetually vulnerable because of the impact and effect of the mining on their health, land, crops, water, farm, rivers and so on.

Mining companiesare mostlymotivated strictly by interests that can be defined in cost benefit terms (Dashwood, 2012). The report the shareholders want to listen to at the end of each financial year is how much profit the company has made and what dividends are going to be distributed and paid out. The NGO's have been vocal and critical about the ruthless profit driven nature of mining companies without regard or respect for the environment and land in which they operate.

It is pertinent to state that business can be done in a sustainable way and manner and significant profit would still be made to pay the workers and the shareholders (Polonsky and Daub, 2005). According to Alexander (2007), "normatively preferable value, and 'ideal environmental sustainability,' is elevated to the level of being the primary filtering value through which other competing values are evaluated, prioritized, and implemented. Therefore, in order for this to occur in practice, there must be radical implementation of the laws, rules, and regulations that define and guide how mining companies should operate sustainably and responsibly."

The concept of environmental justice, therefore, which is commonly understood as the pursuit of equal justice and protection under the law for all environmental statutes and regulations without discrimination irrespective of the companies or people involved is imperative and needs to be applied and observed during mining operation (White, 2003). This is pointed out against the backdrop that the communities in which mining companies operate are always on the receiving ends of the catastrophic, calamities and extensive destruction of their land and environment. Hence, there should be fair treatment and meaningful involvement of the people living in the community

with regard to the development, implementation, and enforcement of environmental laws, regulations, and policies guiding all dealings with the environment in order for all generations to benefit and enjoy. Likewise environmental justice has been described as "the distribution of environments among peoples and the impacts of particular social practices on specific populations" (Leach et el., 1999). It is against the backdrop of this that it is imperative for the mining companies to observe and apply the principles and concepts of environmental justice (Duru, 2014) and by extension, ecological justice (Hays, 1998).This is what White (2004)refers to as "the relationship of human beings, more generally, to the rest of the natural world such as the health of the biosphere, the quality of the planetary environment, and the rights of other species."

As part of the solutions to curb environmental harm and degradation attributed to mining operations, there are a range of international, regional, national and local laws and best practice guidelines that aim to protect and preserve the environment during and after mining (Azcue, 2012). The EMP and Closure Plan (which manages current and post mining activities and their impacts) are aligned to these guidelines, and if properly utilised, they will ensure that the environment is restored to the initial state it was before the mining operations commenced. More importantly, the Closure Plan needs to provide a lasting solution to sustaining and improving the environmental conditions caused by the mining operations, and address all other social issues that manifest from mine closure (Epstein, 2014).

6. Discussions

Considering that there is need to carry out mining operation for economic growth and development, it is imperative that it should be done sustainably. A well designed EMP that meets both national and internal standards is a potent regulatory tool that will produce sustainable mining in areas and communities where mining companies operate. However, simplyputting the EMP in place is not enough; there must be full compliance implementation. This is where the regulations and regulatory authorities come in. They must perform the intrinsic role of ensuring that there is strict implementation. If there is non-compliance, the regulators must ensure enforcement and sanction erring mining companies. It is against the backdrop of this thatthe EMP and regulatory interventions that have been put in place to support the functioning and implementation of the EMP during mining operations are discussed with the purpose of ensuring protection for the environment from being degraded and destroyed.

6.1. Legislation supporting planning in mining operations. *6.1.1. The Constitution of the Republic of South Africa, 1996.* In South Africa, existing mining laws and policies require that all mining companies must, throughout the life-of-the-mine, plan for mine closure and report rehabilitation and decommissioning activities (Szwedzicki, 2011). Section 24 of the Constitution makes provision for the protection of the environment. This section makes it obligatory for everyone to protect the environment for the benefit of the present and future generations (Wood, 2009). The section goes further to state that "the protection of environment must be done through implementation of reasonable legislative measures that will prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development." Applying this law to mining operations obliges the mining companies to ensure that mining activities do not adversely affect the mining communities and environment at large. The environment must be used in such a way that it is beneficial to the communities and the people (Bailie, 2009). Therefore, mining companies are obligated in terms of the provisions of the constitution to ensure that they remedy and rehabilitate the environment or put plans and programmes aimed at remedying the environment in place in case of degradation of the environment during mining operations (Swart, 2012). By so doing, the mining companies will be promoting and operating sustainable mining operations. To this end, EMP becomes a powerful tool being utilised to ensure that the environment is protected from harm and degradation (Glasson et al., 2013).

6.1.2. Mineral Petroleum Development and Resources Act 2008. Before the passing of the Mineral Petroleum Development and Resources Act 2008 "many mining companies used irresponsible mining methods with no regard towards protecting the environment and had often shirked their responsibility towards environmental rehabilitation by leaving an area un-rehabilitated prior to them being liquidated or leaving the country" (Limpitlaw et al., 2005). Under this regime, this Act makes provision for integrated environmental management and responsibility to remedy the environment. Sections 39(1) prescribes environmental management programme and environmental management plan and enjoins "every person who has applied for a mining right in terms of section 22 to conduct an environmental impact assessment and submit an environmental management programme within 180 days of the date on which he or she is notified by the Regional Manager to do so."

This Act provides that an applicant for a mining operation must, before the Minister approves the environmental management plan or environmental management programme, make financial provision for the rehabilitation or management of negative environmental impacts. The Act also states that if a mining company fails to rehabilitate or manage, or is unable to undertake such rehabilitation or to manage any negative impact on the environment, the Minister may, upon written notice to such company, use all or part of the financial provision contemplated in subsection (1) to rehabilitate or manage the negative environmental impact in question. Moreover, this Act provides that "the mining company must annually assess its environmental liability and increase his or her financial provision to the satisfaction of the Minister and if the Minister is not satisfied with the assessment and financial provision of such a mining company, the Minister may appoint an independent assessor to conduct the assessment and determine the financial provision for the rehabilitation of the environment." Further, section 42 of this Act provides that "any residue deposits must be managed in the prescribed manner on a specific site demarcated for that purpose in the environmental management plan or environmental management programme and no person may temporarily or permanently deposit any residue or deposit on any site other than on a site demarcated for that purpose."

6.1.3. National Environmental Management Act 1998. This legislation seeks to provide the necessary regulatory environment particularly regarding how the environment should be used, and promotes the country's developmental path in a sustainable, economic and environmental manner (Epstein and Buhovac, 2014). Moreover, the Act further provides that "the disturbance of ecosystems and loss of biological diversity, pollution and degradation of the environment, the disturbance of landscapes and sites, and waste be avoided and in situations where it cannot be avoided be minimized and remedied" (Scarce, 2015).

Section 23of NEMA makes provisions for the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities which is aimed at the promotion of the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment. It stipulates further that "the effects of activities on the environment must receive adequate consideration before actions are taken in connection with them" (Wathern, 2013). Also to "identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2."

This Act further provide that "every individual who causes, has caused or may cause pollution or degradation to the environment with a duty to take reasonable measures to prevent pollution or degradation from occurring, continuing or recurring, and in situations where harm or degradation to the environment cannot be avoided or stopped, to minimise such pollution or environmental degradation." Under the regulatory framework of the National Environmental Management Act, 1998, an applicant applying for prospecting right must do the following: "consider, investigate, assess and communicate the impact of his or her prospecting or mining to the competent authorities, must manage all environmental impacts based on the approved EMPs, must ensure prompt rehabilitation of the environment in conformity with generally accepted principle of sustainable development, must take responsibility for any environmental damage, pollution or ecological degradation as a result the mining operations in the area and any affected areas even outside the boundaries covered by the approved EMPs."

6.1.4. National Environment Management: Air Quality Act, 2004. This Act emphasizes the importance of rehabilitation of the environment and the prevention of pollution by a mining company after its mining operation (Limpitlaw et al., 2005). This Act provides that "if it is determined that a mine is likely to cease its mining operations the owner of that mine must promptly notify the Minister in writing of any plans that are in place or in contemplation for the rehabilitation of the area where the mining operations were, and the prevention of pollution of the atmosphere by dust after those mining operations have stopped." The Act demands a "rigorous mitigation of both biophysical and socio-economic impacts and prescribed sanctions for irresponsible mining."

6.1.5. The National Environmental Management: Waste Act, 2008. This Act provides that "any person who undertakes any activity which involves the reduction, re-use, recycling or recovery of waste must, before undertaking that activity, ensure that such reduction, re-use, recycling or recovery of the waste uses less natural resources than disposal of such waste, and to the extent that it is possible, is less harmful to the environment than the disposal of such waste."

6.1.6. National Heritage Resources Act, 1999. Under this law, "the applicant will have to submit an environmental management plan as prescribed and establish baseline information concerning the affected environment to determine protection, remedial measures and environmental management objectives" (Glazewski and Witbooi 2016); the applicant is also expected to "investigate, assess and evaluate the impact of his or her proposed prospecting or mining operations on the environment; the socio-economic conditions of any person who might be directly affected by the prospecting or mining operation; and any national estate" (Hays, 1998).

6.1.7. Mine Closure Plans. Mining operation creates jobs and generates revenue being used to drive economic growth and development. It is however equally important that the operation must be conducted responsibly; sensibly and sustainably (Epstein and Buhovac, 2014) otherwise the positive short impact of the mining activity to the communities in terms of jobs during the period of the mining operation will be overwhelmed with the negative impact which is more prolonged and lasting (Brubaker et al., 2006). Thus, when the mine is finally closed, in most cases, the environment and the land might have been substantially degraded to the extent that it will have a huge negative impact on the people and community where the mining operations was carried out (Button, 2013). It is against the backdrop of this that mining operations should be properly managed through EMP from the inception so as to curb devastating adverse impacts and effects of the operation on the environment and community after closure and beyond . In South Africa, the law mandates mining companies to plan for the future in order to minimise the problems relating to closure of mine sites and to minimise long-term liabilities for miningcompanies" (Szwedzicki, 2011). The mining company is responsible "for impacts resulting from its mining activities. This responsibility does not end with cessation of mining activities but continues till the mining lease is relinquished" (Szwedzicki, 2011). Robust EMP for "a mine closure is intended to assist mining companies in providing effective life-of-the-mine strategies for mine closure during all phases of mineral development, that is, from initial exploration to closure and final tenement relinquishment" (Szwedzicki, 2011). The usual contents and components of the plan in the EMP are the "setting of objectives and defining completion criteria, planning, decommissioning, monitoring and reporting" (Szwedzicki, 2011).

Because of the different risks involved inmine closure as earlier amplified, multiple tools and mechanisms are usually deployed to ensure successful closure hence, the use of risk management techniques can help reduce negative impacts. These techniques have "significant potential as a tool for decision-makers to assess the major closure risks at individual mine sites in a structured, systematic manner both qualitatively and quantitatively." These techniques give room of benchmarking and comparison by using what is being done at a particular site to assess what is being done at another. More importantly, the closure part requires holistic approach where all the skills of the entire professional are enlisted and incorporated in order to ensure that all the assessments and interventions help to reduce subjective bias.

More importantly, the community where the mining took place should be robustly engaged during closure in order to achieve an optimum and sustainable closure. High level consultation is of paramount importance at this stage in order to prevent future litigation from the community. By doing the right thing and ensuring successful closure, the mining company stands to gain and benefit a lot especially from the "support they received from employees, landholders, local and state governments, and other stakeholders. Other benefits include significant cost savings and a competitive advantage for future exploration/mining activities" (Laurence, 2006).

6.1.8. Implications and Consequences for Non-compliance with EMP. Non-compliance with the EMP by the mining companies will hinder sustainable mining and this will adversely affect human beings and the environment (McKinnon 2002). " The poor and vulnerable in most of the communities where mining companies operate depend mostly on the land, environment and natural resources for livelihood (Hilson and Murck, 1997); thus, their health and livelihood are likely to suffer if these resources and the environment are degraded (Cannon 1994). Consequently, the poor and vulnerable are less capable to cope when environmental degradation occur, meanwhile the rich can easily afford medication for treating pollution related diseases and are able to relocate from polluted areas to better areas while the destitute cannot.

The law imputes a sustainable civil responsibility on the part of the director of the erring mining company as amplified in section 38(2) that "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." This is in line with the 'polluter pays principle', one of the environmental principles which means that whoever is responsible for damage to the environment should bear the costs associated with it.

Conclusion

The probative value of EMP is significant in mining operations because it serves as a sustainable road map to achieving sustainable mining. Considering that environmental and land degradation are usually caused by irresponsible mining activities, there is need to ensure that approved EMP are strictly complied with and fully implemented in any mining operation. At the same time, non-compliance by a mining company should be sanctioned as prescribed by laws and the erring company should be brought to book. More importantly, sanctions should include rehabilitation, restoration and overall remediation of the environment and the community. As a matter of fact, it is submitted that all punitive and civilly options should be considered and applied against any erring mining company that degrades and destroys the environment and the community. It is, therefore, important to reiterate that EMP, environmental impact assessment and rehabilitation are aimed at ensuring that the environment remains productive, conducive and beneficial to human beings, ecosystems, bio-diversity, the community and the mining company. Conclusively, the EMP is a tool that should be embraced and always utilized to drive and promote environmental sustainability in mining operations.

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