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SUSTAINABLE MANAGEMENT STRATEGY AND THE ATTAINMENT OF COMPANY GOALS IN THE MINING SECTOR: A REVIEW OF RELATED LITERATURE

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ABSTRACT

The review paper focuses on how the environment is impacted by mining companies due to poor strategy choice. The ecological system in many countries is being impacted on by the operations of mining companies which have caused a lot of environmental degradation. The research reviewed literature on how strategy choice can impact environmental performance and an entity's financial performance. The researchers used various scholarly articles from the internet, journals and books. The researchers established that there is a great misalignment between company strategy and environmental regulations. Mining companies are making use of unsafe mining techniques which affect the conservation of resources. Mining companies are channeling much effort towards maximizing shareholder returns at the expense of the ecological environment. The research recommended that the environmental regulators should develop legislative measures that impose strict penalties to mining companies which do not comply with environmental regulations. Also, the environmental regulating authorities should be given adequate funding for carrying out environmental monitoring sessions thoroughly.

KEYWORDS: sustainable management strategy, environmental performance, sustainable development in mining, business strategy choice, mining and the natural environment

1. INTRODUCTION

Many developing countries have turned to mining to develop their economies. Mining is a multi-step process that includes mineral extraction, processing, beneficiation, smelting, retrieval, and remediation, among others. Zimbabwe is a country rich in natural resources, but it can only reap the benefits if the resources are extracted sustainably. Natural resources serve as a life support system for all living things and a foundation for many manufacturing operations around the world. The Sustainable Development Goals (SDGs) entail proper management of the natural environment and its



components, such as water bodies, land, and the atmosphere. Communities now demand businesses to perform ethically in ways that benefit society while also sharing possible benefits even with people with no particular interest in the operations of the company. It is against this background that the following paragraphs will explore literature related to sustainable management strategy and the attainment of company goals in the mining sector.

Mining over the years has provided materials which have evidently accumulated in the Technosphere and contributed towards the development of many economies' the world over. Responsible and proper management of the limited natural resources is central towards development of communities. Over the years mining has been serving as the base for many industries including agriculture, energy, construction, automotive, chemicals, paints, plastics amongst others (Dubinski, 2013). There are various types of mineral extraction techniques with each type having its own ecological footprint (Carvalho, 2017). Mineral extraction from the earth posits both opportunities for economic development and challenges of sustainable development (UNDP, 2018). Environmental and social problems caused by mining processes have increased tension between mining companies and the communities they operate in. Declining ore grades and intensity of resources affects the unit of waste produced by unit of resource which eventually increases environmental pollution and quality of life in households living in mining areas. Mineral resources are finite and non-renewable hence the need for mining companies to adopt safer and sustainable mineral extraction techniques (UNDP, 2018). Effort to reduce environmental decay should not only target the purification process but should be embedded in the value chain of the organization to ensure that quality management mechanisms are in place at every stage of production. Governments across the globe have been insisting on the concept of sustainable development in the mining sector but little effort is being put by mining entities towards preserving the ecological environment. When compared with other sectors like forestry, agriculture and aquaculture, the mining sector is seen as the least responsive towards environmental protection (Worrall et al., 2009). The finite nature of mineral resources means that mining practices only take place up to a certain level, afterwards the resources will be depleted. The dark history linked with inappropriate mining practices primarily centered on the development model which utterly focuses on profits linked with the mineral extraction process with little emphasis on the rehabilitation of the surrounding environs affected by the mining activities should no longer be considered. Current global challenges and transformations, such as an unfathomable economic downturn, great social strife, and ever-changing and increasing stakeholder expectations, have increased pressure on businesses to incorporate societal and environmental issues into feasible business strategies and activities. Globalization, entity scandals, and stakeholder calls for entity inspection were all important drivers of sustainability in the launch of the Business Research Project by the Chartered Institute of Personnel and Development (Catrin, 2011). Despite the fact that mining is the backbone of many economies around the world (Measham, 2013), it is inflicting increasing environmental harm. Without a question,



mining has provided many chances in countries by creating jobs and strengthening and maintaining international relations. The idea is backed up by Bolong (2016), who believes that mining creates irreversible environmental harm that impacts individuals in the neighboring areas.

One of the key reasons for environmental degradation is the failure of mining company owners to follow restrictions imposed by competent authorities, as the owners will be complacent knowing that whatever they do will not be identified and held accountable. Deplorable living conditions have become the norm in mine-affected areas. Mining has significant social and environmental consequences that are intimately linked to the well-being of people in surrounding communities and the state of the environment (Cullen-Unsworth, 2014). As a result of the context, mining corporations must examine the potential consequences of their strategies and reduce the negative consequences by adopting the appropriate courses of action in carrying out their operations. Mineral wealth has been mined since the 19th century with little regard for environmental protection. Businesses are formed and operated with the goal of producing money, whereas government agencies exist to protect the public from harm caused by the activities of organizations. An organization's strategies should be beneficial to all stakeholders that are connected to and engaged in its activities. Early proponents of sustainable business strategy, according to Fowler et al., (2007), believed that a firm's performance should be based on the entire quantity of resources available. The natural resource-based view of the entity was coined to describe this school of thought. Base minerals such as copper, nickel, iron, and zinc, among others, are mined in large quantities in the United States of America due to higher consumption and demand for those minerals, as well as the fact that they account for the largest percentage of base minerals found in the country's societies (UNEP, 2013). Base mineral extraction is costly because it necessitates heavy-duty mining equipment, which, if not properly managed, can have detrimental environmental consequences. The discharge of solid material and waste into the environment, which occurs at practically every stage of the mineral extraction process, has caused environmental harm and has had significant consequences for human lives in recent years, thus conservation should be a top priority (UNEP, 2011).

In Africa, the mining industry has emerged as a significant economic growth engine. There has been a 64% increase in the continent's Gross Domestic Product between 2000 and 2011 due to mining related activities (African Progress Report, 2013). Mineral investments should be financially viable, technically feasible, environmentally sound, and socially accountable. The strategy for incorporating the notion of sustainability into strategic decision-making processes and operations has come under growing attack from those interested in extracting non-renewable resources. Complacency and lack of effective policies to defend the environment have greatly caused a lot of environmental degradation in South Africa. The South African government has attempted to develop a number of plans and policies to safeguard the environment, but they have all failed owing to inadequate implementation

and follow-up tactics (Amechi, 2009). There are controversial situations in South Africa that have resulted in the environment being harmed as a result of a lack of consistency in formulating and passing decisions. To safeguard the environment, diverse environmental institutions must work together, however the Department of Mineral Resources in South Africa gave prospectus and mining permits without authorization from other government departments. Total lack of key and sounding policies that allow the Department of Mineral Resources to conduct efficient monitoring exercises has accelerated ignorance and a cavalier attitude in the mining sector of South Africa towards environmental protection through closure and adhering to good business practice, causing much pain to people living in small communities.

Communities in Zimbabwe regarded the discovery of diamonds in Manicaland as a blessing, but there is now an outcry about the harm that mining firms have caused in communities (Katsuar, 2010). When the Zimbabwe Consolidated Diamond Company was set up in 2016, local residents in Marange were hopeful of environmental protection and community development, but no effort has been put on conserving the environment as resources are channeled towards mineral extraction. In an effort to reduce the rate of environmental damage, the regional manager for the Environmental Management Agency, confirmed that some mining companies were operating without a valid Environmental Impact Assessment certification. The impact of the Zimbabwe Consolidated Diamond Mining Company on the environment has been thoroughly documented. One of the concerns expressed was water pollution, as chemicals used to polish diamonds were discovered in river sources. Some residents claimed that some of the water sources that were earlier used for drinking were no longer safe since the water was causing skin irritation (Zimbabwe Environmental Law Association, 2012). During the peak of mining operations, the local inhabitants grumbled that there was no longer any tranquility. Fears of tuberculosis developed since the community claimed that the excavation equipment is causing a lot of air pollution in the region.

Table 1: Mineral distribution in Zimbabwe

Mineral Type	Location	Estimated Potential Reserves	Estimated Average Grade
Gold	Goromonzi, Gwanda, Gweru, Kadoma, Bindura, Mutorashanga, Mutare, Zvishavane, Chegutu, Bubi, Chakari, Goromonzi among others	84 million tons	4,9g/t

PGE	Great Dyke, Chegutu, Shurugwi, Wedza, Msengezi, Zvishavane	4,4 billion tons	3.6g/t
Diamond	Zvishavane, Beitbridge, Somabula, Binga, Triangle, Mwenezi, Bembezi among others	38 million tons (Excluding Marange)	36,7 carats/100tons
Emeralds	Masvingo, Mberengwa, Filabusi	Enormous potential in Mberengwa District	Small sizes
Chromium	Limpopo, Makonde, Shurugwi, Chirumanzu, Mashava, Gweru, Belingwe, Great Dyke, Mutorashanga among others	10 billion tons (Great Dyke) and 608 million tons in other areas	47-60%
Nickel	The Great Dyke, Zvishavne, Chegutu, Shangani, Bubi, Bindura	114 million tons	0.87%
Tantalite	Chipuriro, Mutoko, Odzi, Bikita, Harare, Makaha, Hurungwe, Inyanga, Kamativi, Shamva	Zimbabwe is one of the biggest producers	
Lithium	Kamativi, Zambezi, Bikita	6 million tons	4,2%
Iron ore	Mongula, Manyoka, Chivhu, Mberengwa, Kwekwe, Nyuni, Limpopo	30 billion tons	53% Fe
Copper	Zvishavane, Mhangura, Sanyati, Lomagundi	29.4 million tons	1,1% copper



Coal	Hwange, Sengwa	13,5 billion tons	13,5%
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LUPGAS (2014), Mungoshi (2014), Mlambo (2012a, 2011, 2010), MMMD (2011), Mugandani and Masiya (2011), Mungoni (2011)

The concept of sustainable management in mining

Sustainable management is the ability of an organization to use natural resources in a way that serves the demands of the current generation without jeopardizing the needs of future generations (Robert et al., 2016). The environment is a set of physico-chemical variables, natural elements, and the socio-ecosystem that forms the foundation of all operations around the world in which individuals and entities put their lives on the line to earn a living that they are entitled to preserve in exchange for high living standards. According to Mawere (2015), the environment is an explicit and active issue that refers to the relationship between human groups regardless of culture or biophysical components. The phrases sustainable, environment, and conservation are all intertwined in forming the concept of how to use resources efficiently today and in the future. According to Kramer (2011), a sustainable management approach entails the incorporation of economic, environmental, and social elements into an organization's decision-making and planning in order to provide long-term value for the business and society as a whole. Developing long-term corporate strategy necessitates tying together existing strategies, shareholder value, and the needs of diverse external stakeholders. Schaltegger and Wagner (2011) argue that tying economic value to social and environmental factors necessitates the deployment of sustainable development business cases, resulting in a case with positive social and environmental returns. Due to the extent to which the strategy may support or completely distract the increase of economic value that may be deemed fit for the intended purpose, the process of business case building for sustainability to be attained has consequences on an entity's competitiveness. Early proponents of the sustainable strategy argued that an entity's performance is determined by the resources available for usage, including those from the environment.

The impact of adopting sustainable management strategies on company performance

Mining firms operate in a complex, interconnected corporate environment that requires them to pay close attention to the socioeconomic situations of the areas in which they operate (Robert et al, 2016). When the aspect of social capital is overlooked, social demonstrations become the norm, putting a strain on firms' ability to operate, which in turn affects productivity and eventually, profitability. A change in an entity's environmental dimensions results in a positive or negative response to organizational performance indicators (GRI, 2011). Customers have become selective about acquiring products from organizations that are ecologically friendly; therefore, adopting sustainable



management gives an organization an operating edge over other corporations. Companies that operate with environmental conservation in mind are thought to achieve better levels of financial symmetry than those that operate with profit maximization in mind. Entities' sustainable management strategies all strive to improve the performance of internal controls, decision-making procedures, compliance, and cost reduction. From the standpoint of an organization, sustainability is only achievable if the company's goals are met without jeopardizing various stakeholder expectations or future shareholder values (Dyllick and Hockerts, 2002).

The extractive industry has made significant progress in recent decades in mitigating and managing mining-related negative impacts and risks by improving how companies manage their environmental and social impacts, protect their workers' health, report financial flows, and respect and support human rights (Kumar, 2017). At multiple levels, mining-related activities must be closely integrated with the economy, including aligning exploration and mining to maximize long-term efficient mineral production; improving the efficiency of the interface between mineral extraction and metal production to increase potential for manufacturing and jobs, as well as resource use efficiency; and promoting and incentivizing investment (Kumar, 2017). Greening the global primary sector is now widely recognized as a feasible, desirable, and even profitable way to lessen mining's environmental impact. The current technologies being used by mining companies play an essential role in determining the profits likely to be realized from operations. Environmentally friendly technologies may be more expensive in terms of capital and operating costs. However, these technologies can be more efficient (though this is not always the case), bringing in more money and lowering the company's environmental clean-up and liability expenses.

The International Labour Conference of 2007 emphasized the need to promote a favorable environment for corporate management which makes it possible for achieving operational profits, human dignity promotion, environmental sustainability, and company goals. The argument is backed up by seventeen other pillars of sustainable development, all of which revolve around environmentally responsible or sustainable management. The Employer's Confederation of Zimbabwe conducted an assessment in 2016 to identify the current state of the country's environment and to develop plans for long-term development. An analysis was carried out with the technical assistance of the International Labour Conference, core personnel, and central government representatives. The survey's evaluation included all 17 factors proposed by the International Labour Conference in 2007 in order to come up with appropriate solutions (ILO, 2018). According to Delgado-Ceballos et al., (2011), in order to meet stakeholder expectations, it is critical to develop long-term management strategies that ensure that stakeholder expectations are met. The entire system is centered on adopting methods that constitute a comprehensive long-term balance between the organization's financial systems, which assures continual capital infusion from investors while also enacting regulations that ensure that the ecological



environment is not disrupted. Adopting environmentally friendly practices leads to increased creativity, which in turn leads to decreased operating expenses, the development of environmentally friendly products, and an improvement in operational capabilities.

METHODOLOGY

The researchers used secondary sources such as government reports in the review of related literature. Such sources included the internet, books, environmental laws and regulations and some Acts of Parliament.

RESULTS AND DISCUSSION

The review above indicates that most of the mining companies worldwide are causing more harm to the environment compared to intended benefits. The review showed the following;

- Mining has proven to be important in the transformation of world economies worldwide through its major contribution to gross domestic product for various nations.
- Mineral extraction has led to serious environmental degradation and contamination of underground water reserves.
- Mining operations have affected environmental performance leading to climatic changes.
- The environmental regulators are facing challenges in executing their duties which have seriously affected the conservation on resources.
- Mining companies are aiming at maximizing returns at the expense of the natural environment

To improve environmental performance, mining companies should design their strategies carefully and align them to environmental laws which aim at conserving the natural environment.

CONCLUSION

The extractive industry has made significant progress in recent decades in mitigating and managing mining-related negative impacts and risks by improving how companies manage their environmental and social impacts, protect their workers' health, report financial flows, and respect and support human rights. At multiple levels, mining-related activities must be closely integrated with the economy, including aligning exploration and mining to maximize long-term efficient mineral production; improving the efficiency of the interface between mineral extraction and metal production to increase potential for manufacturing and jobs, as well as resource use efficiency; and promoting and incentivizing investment. Greening the global primary sector is now widely recognized as a feasible, desirable, and even profitable way to lessen mining's environmental impact. The current technologies being used by mining companies play an essential role in determining the profits likely to be realized from operations. Environmentally friendly technologies may be more expensive in terms of capital and operating costs. However, these technologies can be more efficient (though this is not always the



case), bringing in more money and lowering the company's environmental clean-up and liability expenses.

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