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**DISSERTATION TITLE:**

**An Assessment of the Impact of Black Granite Mining on Sustainable Development in Zimbabwe. The Case of Mutoko District from 2002 to 2017.**

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## **ABSTRACT**

The concept of sustainable development has become a ubiquitous feature in most developmental policies across the breadth and length of the world. Therefore, this research analyzed the impact of the extraction of black granite on sustainable development particularly making use of the case of Mutoko District in Zimbabwe. Mining of black granite in Mutoko commenced way back in the early 1970s. The people in Mutoko District expected that the exploitation of the natural stone would bring sustainable development to the table and Mutoko, as a Growth Point, would be transformed into a town. However, this dream has failed to see the light of the day. The hypothesis of the research purported lack of congruent and decentralized legislative frameworks which govern the contact of black granite mining, as the major stumbling block against achieving sustainable development. The study examined the challenges faced in the extraction of black granite in Mutoko District. Both qualitative and quantitative methods were utilized during the process of collecting the research data. In tandem with the above, mixed methods of research analysis were also used to analyze the acquired data. For the qualitative analysis, both content analysis and thematic analysis were used whilst the Statistical Package for Social Sciences (SPSS) was used for quantitative analysis. Tables, graphs and pictures were utilized to substantiate and corroborate the facts raised and to enhance a more informative presentation of the acquired data. The acquired data managed to put into lime light the fact that lack of congruency within the legislative frameworks governing mining of black granite is the outstanding challenge whilst other problems include the deficiency of value addition, loss of land, siltation, high decibel noise pollution, destruction of cultural sites, spreading of diseases and sexual immorality, just to mention but a few. As an effort to mend the relationship between black granite mining and sustainable development, some remedial mechanisms were presented to include; the need to align the legislative frameworks governing mining of granite, giving more power to the local authorities to administer the exploitation and beneficiation of local resources, signing of Environmental Impact Assessment agreements and regularly social audits as well as Environmental Impact reviews.

## **DEDICATION**

This piece of work is dedicated to my Father and Mother for their support through thick and thin, to ensure that I realize my potential and that I succeed in all my academic pursuits. I will not forget the Almighty God for his amazing grace which has taken me this far.

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## **ABBREVIATIONS**

EMA	Environmental Management Agency
EM	Environmental Management
EIA	Environmental Impact Assessment
MMMD	Ministry of Mines and Mineral Development
RDC	Rural District Council
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
ZELA	Zimbabwe Environmental Law Association
WWW	World Wide Web

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## **CHAPTER ONE : INTRODUCTION**

### **INTRODUCTION**

Mining has over years proven to be a sector which has offered remarkable contributions to the development in several countries across the global village. Particularly, black granite mining has been practiced in Zimbabwe for a lengthy period of time. Hence, there is a need to investigate and analyze the impact of black granite mining on sustainable development in Zimbabwe. Therefore, the research eventually produced recommendations on what needs to be done to improve the situation at hand. The chapter entails components like background of the study, statement of the problem, research objectives and questions, justification of the study, delimitation, limitations and the structure of the study.

### **1.1 BACKGROUND OF THE STUDY**

Sustainable development is a method for using available resources in a way that the present will enjoy whilst the incumbent coming generation left worse off, so that they can also appreciate the indistinguishable advantage as stipulated by the Brundtland Commission of 1987. The idea of sustainable development rose because of the developing familiarity with the need to monitor and save the environment and human life. Dreschler (2001) purports that sustainable development is an approach to deal with the inadequate resources and exploiting them in a manner which embraces long lasting development. Findings and experiences have shown that resources have been abused to the degree that there was what might be termed as negative development. Sustainable development is purported to have been propounded as an approach to address the effects caused by various exercises which prompted environmental challenges and lack of survival of human beings in dignity. The growing need for crude materials has had some militating effects against the promotion of environmental protection. The third world countries are in dire need to revolutionize and improve their economies as they have minerals which are being mined without proper observation of environmental laws whilst they are also exported in their cheapest form. The realization of a deficiency of sustainability in the world's development agendas prompted the holding of a distinctive summit which the Rio De Jenairo Earth summit held in 1992. In conjunction with the above, a World Summit on Sustainable Development was

also held in the year 2002 in Johannesburg. These gatherings conducted in order to think of arrangements on the most proficient methods to realize sustainable development on every developmental programs which include the environment. The issue of environmental awareness and conservation was discussed with the zeal to avoid a situation whereby the life standards of human beings and creatures and economic development continue to be jeopardized.

It is of incredible significance to take note of the fact that sustainable development in Africa as far as the use of natural valuables remains a dangerous condition as destitution and negative environmental changes persist to be the principle dangers. Africa continues to portray insignificant levels of maintainability and this can be attributed to the fact that it depends much on raw materials as the means of survival thus, the exploitation of such should in a sustainable way. Most African nations are associated with modernization endeavors since some are a long way from development as minerals are being utilized as crude materials along these lines occupied with asset abuse. It seems like a missing link exists between the exploitation of minerals and economic development hence, numerous nations have subsequently failed to achieve alluring economic development.

Mining of black granite is not a new concept in the global history of mining as its advent can be traced back to the 19<sup>th</sup> century in the Southern Atlantic States. A typical example is that of the North Carolina Granite Corporation which in 1889, invested in the Mount Airy Quarries, which are situated near Mount Airy. The United States Geological Survey (1910) notes that around one hundred and thirty five loads of granite blocks saw their transportation over the seas in July 1890. From then, the practice of granite mining has grown in both scope and nature, which has led to increased economic and social development. However, its history is associated with a trail of negative implications on the environment and social equity issues, which is a situation not cognizant with the concept of sustainable development.

Zimbabwe is one of the states in Africa which produce black granite in large sums. Saunyama (2015) purports that in Zimbabwe, black granite mining saw its birth during the pre-independence era when the natural stone was first mined in 1972. One of Zimbabwe's major producers of black granite is Mutoko District. This district is endowed in large amounts of black granite deposits which makes it a very good source of the natural stone which the local people term as "the Black Gold." The increase in infrastructural development fermented the demand for

the natural stone culminating in large-scale quarrying activities in Mutoko. More than seventy percent of the natural stone produce by Zimbabwe comes from this district (Zimbabwe Mining Development Corporation, 2017).

The sprouting of quarrying activities in the district has led it to be one of the country's significant mining districts. Since the early 1970s, the granite rock has been exported overseas but leaving no tangible marks of development in the district. Mining has been going on for a couple of decades whilst the indigenous people in the affected communities benefited nothing more than nutshells. After the realization that the extraction of black granite in Mutoko is not benefiting the country, the administration of that time strengthened its monopoly over the income acquired through mining of black granite. The natural stone was then enlisted to be part of the country's minerals as in the Mines and Minerals Act (1999). The centralization of power over the mining of black granite has however brought gross ambiguity and a lot to be desired in terms of who gets, what, when and how? Instead of bring good to the communities affected, the mining of black granite has always been accompanied by a quagmire of negative implications on both the environment, economy and the people. Eaton (1996) notes that the challenges include air, soil and noise pollution, the aesthetic beauty is baldy modified into an eye-sore, loss of land, health challenges due to infections and injuries as well as the destruction of roads. Muranda(2012) also note that some open pits left unfilled have also become a life hazard to both human beings and their livestock. The presence of the large deposits of the "Black Gold" should be leverage for Mutoko Growth Point to become a town with more prospects of even becoming a city. However, the mining companies do not consider the principles of sustainable development as important to them. The notion of sustainable development came out as a result of noticing that development can endanger and compromise the future generation's wellbeing if understood and executed in a perverted manner. Hence, it argues that the utilization of the current available resources should not handicap the impending generation's capability to realize its own requirements.

Nevertheless, some reports show that there have been some contributions which mining has offered towards sustainable development in the area though not very formidable. In the bi to uphold sustainable development and corporate social responsibility, the miners have also embarked on roads grading, schools rehabilitation and other infrastructural development



interventions as well as bringing in employment. Therefore, the study seeks to assess the effects of black granite mining on sustainable development in Mutoko District and also suggest some recommendations that will help to ensure that the extraction of black granite brings the full realization of sustainable development to the District.

## **1.2 STATEMENT OF THE PROBLEM**

The District of Mutoko possesses hundreds of millions in United states dollars in natural resources, largely as the black granite, however much of the community expectations seem to be a disappointment (Muranda, 2012). In tandem with the above, Mutoko District has a deficiency in terms of proper road networks as well as other social, technical and economic facilities to ensure growth. The absence of value addition of natural stone has seen it being shipped in its raw and cheapest state hence no improved beneficiation is being realized. This means that the “Black Gold” is not benefiting the indigenous people besides the government effort which led to the enactment of the Indigenization and Empowerment Act of 2008. It is only the middlemen and the receiving states who will sell the natural stone for a very lucrative price, hence perpetuating the sentiment of the dependency theory which argues that the African states will remain dependent on the Western countries. Thus, value addition will also mean more employment creation and circulation of currency hence more prospects of development.

Moreover the mining practices have had some devastating connotations to the communities affected hence both animals and human beings have been put under life threatening situations which is a condition not favourable for the fruition of the idea of sustainable development. The lack of consciousness on sustainable development and sustainable mining practices has induced a complex series of negative effects like indiscriminate cutting down of vegetation, siltation, poor road networks due to the heavy weight trucks, a malady in the ecosystem, pits left unclosed, air and noise pollution, loss of land as well as the destruction of cultural and heritage sites. The above factors have had a domino effect culminating in life threats such as drowning and sickness. This sorry state shows that the miners are oblivious and unconscious of the concepts of environmental conservation and sustainable development as they continue to engage in mining practices which are detrimental to the local community. Contrary to the above situation, the notion of sustainable development ascribes to the fact that the mining practices should leave the affected communities with at least the basic infrastructure like proper roads, water and sanitation

coverage, health security as well as education which is the antithesis of the situation in Mutoko District. Hence, the most bedeviling question is that if mining of granite is posing a danger today then what about its futuristic effects? The mining companies should stand as development partners to the community and Mutoko Rural District Council (MRDC) and not as a liability whose effects will even compromise the future generation from realizing its full potential.

### **1.3 RESEACRH OJECTIVES**

The study seeks to fulfill the following objectives:

1. To explore the economic activities in Mutoko District.
2. To analyze the impact of granite mining on the sustainable development of Mutoko District.
3. To assess the legal frameworks covering granite mining in Mutoko District.
4. To examine the challenges faced in the extraction of black granite in Mutoko District.
5. To proffer recommendations on strengthening the role of black granite mining on sustainable development.

### **1.4 RESEARCH QUSTEIONS**

The study seeks to answer the questions below:

1. What are the major economic activities in Mutoko?
2. What is the impact of black granite mining on sustainable development in Mutoko District?
3. How do the legal frameworks covering the granite mining in Mutoko, promote sustainable development in the District?
4. What are the challenges faced in the extraction of black granite in Mutoko District?
5. What are the recommendations on strengthening the relationship between black granite mining and sustainable development?

### **1.5 JUSTIFICATION OF THE STUDY**

The research is an assessment of the impact of black granite mining on sustainable development. The scantiness of the available literature in regards to the impact of black granite mining on

sustainable development shows that a number of studies have had a tendency of focusing generally on the positive and negative connotations of mining of the natural stone whilst leaving out the crucial concept of sustainable development. A number of studies have paid much attention on the paybacks of granite mining whereas some have majored on the undesirable side of it (Bhatasara, 2013). This study therefore, investigated the mining of the natural stone as a process and how it affects sustainable development of Mutoko District and the nation at large.

The study also scrutinized the legal frameworks undergirding and governing the extraction of black granite and assessed the extent to which they promote sustainable development. Hence, the study will help policy makers in improving the available pieces of legislation governing mining of granite. Globally, sustainable development has become a ubiquitous feature in all development agendas; hence it is a critical aspect which must become the order of the day through sensitization and awareness, in the bid to create a sustainable environment conducive for both the present and future generations. It will also help people in the academic field as an additional source of data as they conduct their researches: hence it will be an expediter towards promoting awareness of the concept of sustainable development in Mutoko and Zimbabwe at large.

## **1.6 DELIMITATIONS**

Delimitations can be perceived as the parameters within which the research will be conducted as a way of avoiding the research from losing its original track (Franklin, 2016). The study worked assessing the impact of black granite mining on sustainable development of Zimbabwe, particularly in Mutoko District. Black granite mining is practiced in a number of districts in Zimbabwe. It is prominently mined in about three districts to include Mt Darwin, Mudzi and Mutoko. The study will focus on Mutoko District. There are around 80 districts and ten provinces in the country, of which the study paid particular attention to Mutoko District which is 170km from the capital city. Mutoko constitutes a population of about 145676 people (ZIMSTAT, 2012). Mutoko has three constituencies, of which most of the black granite deposits are located in the northern side of Mutoko, hence it carried the largest number of research participants. The District is part of the Zimbabwean regions which are endowed in mountains and hills, hence making it a very good source of the natural stone. The Chamber of Mines (2011) notes that more than 70% of natural stone shipped abroad is produced in Mutoko alone.

Mining of black granite is not a new phenomenon in Mutoko's economic history as it saw its advent in the early 1970s before Zimbabwe had acquired independence. However, the period of 2000 to 2017 has experienced the crafting and adoption of many policies and legal instruments which promote the concept of sustainable development. This period is characterized by legal instruments like the Environmental Management Act of 2002 which was also amended in 2004, the RDC Act also amended in 2002 also including the issues of natural resources and environmental protection, the adoption of the Indigenization and empowerment Act in 2008, the establishment of Community Share Ownership Trusts under the Indigenization policy and the adoption of the Sustainable Development Goals (SDGs) in 2015. Hence, the study focused on the period from 2000 to 2017. The research also was premised on the incapacitating as well as the enabling factors with regards to the relationship between black granite mining and sustainable development.

## **1.7 LIMITATIONS**

Alteide (1996) proclaims research limitations as the probable or latent weaknesses which might negatively affect the research and can sometimes be uncontrollable. In light of the above, the research was conducted with caution, knowing that some militant factors would likely affect the research. The study realized that some of the participants felt not very free to unveil the data needed as they were afraid that it contained some political connotations hence they dreaded political persecution. Hence, to some extent it decreased the amount of data that the researcher wanted to acquire as some of the critical data was not unveiled. The study constituted people from the rural communities, miners, traditional leaders, council employees as well as government officials. Hence, in conjunction with the above diversity in terms of education as well as livelihoods of the targeted respondents, that some of the interviews were interrupted and some questionnaires not well completed or spoiled. Simultaneously, some of the participants failed to comprehend the meaning of the questions hence the study also suffered from the dilemma and risk of bias, misinformation and politicization. Making appointments was not an easy task as some of the government officials were very mobile and busy hence sometimes the respondent would fail to meet the stipulated time hence also limiting the space for the enough data collection.

## **1.8 ORGANIZATION OF THE STUDY**

The research comprises of five chapters which follow:

### **Chapter 1: Introduction**

This chapter consists of the introduction, background of the study, statement of the problem, research objectives, research questions, limitations and delimitations. Ethical considerations are also given.

### **Chapter 2: Literature Review**

It unveils the works from other scholars to include researches carried out in other countries which augur with the research at hand as well as its theoretical framework.

### **Chapter 3: Methodology**

This chapter describes the design of the research. In addition, it as well encompasses the research techniques and methods of sample selection as well as data collection and analysis.

### **Chapter 4: Presentation and Analysis of Findings**

In this chapter, the data acquired during the research process will be presented and analyzed.

### **Chapter 5: Conclusion and Recommendations**

This is where the research is summarized and concluded as well as passing of recommendations is in relation to what the study data has managed to unveil.

## **CHAPTER 2: LITERATURE REVIEW**

### **INTRODUCTION**

This chapter will review the literature which relates to the topic under study and the theoretical framework which determines the angle or track which the analysis of the acquired data will follow. Hart (2009) notes that best literature reviews should dig deeper in to the issue and look at it from an isometric view. Therefore, the study articulates what other studies say in relation to the study and also brings out the loopholes within the available literature. This chapter is going to cover themes related to the topic under study. Some themes to be covered include: the major economic activities in the rural communities of Zimbabwe, the impact of black granite mining on sustainable development, the legal frameworks covering the extraction of black granite mining in Zimbabwe and the challenges faced in the extraction of black granite. The experiences of other countries will also be explored in order to fully unpack and comprehend the issues underpinning the relationship between black granite mining and sustainable development.

### **2.1 MAJOR ECONOMIC ACTIVITIES IN RURAL COMMUNITIES OF ZIMBABWE.**

#### **2.1.1 Small Scale Mining**

Mutero (2016) notes that small-scale mining is one of the major economic activities in the rural areas around the country. She is also of the view that the people within those communities where small-scale mining is done, take it as survival strategy. Small-scale mining like gold panning is even practiced in more than seventeen nations across the breadth and length of the world (Telma and Viega, 2008). Many people in rural areas depend on small-scale mining to earn a living despite the associated challenges. It is perceived as a means of acquiring social and economic needs hence it becomes an alternative means of employment (Flint, 1988). In addition to the above, small-scale mining also helps in funding other economic activities such as agriculture and other related income generating projects through the generation of the much scarce capital, especially in African countries. Hence, this somehow increase the prospects of attaining sustainable development (Hoardley and Liptaw, 2004). However, this type of mining has its own associated challenges which also include siltation of rivers and dams, deforestation, river banks are disturbed as well as diseases and sickness. Particularly siltation will also negatively affect those in the business of agriculture especially those depending on irrigation. Hence, small-scale

mining in the rural communities is accompanied by both positive and negative effects on sustainable development of the respective communities.

### **2.1.2 Agriculture**

Agriculture is one of the key economic activities in Africa. It has its roots cutting across generations from the pre-colonial period, to the colonial and post-colonial epochs. Mangudhla (2016) cited in Malinga (2017), contends that during the heydays of Zimbabwe, agriculture was the anchor of the economy as well as the greatest provider of jobs. However, the agricultural sector still has the potential of bringing sustainable development to the table if only it is taken seriously as a business. People in rural communities engage themselves in horticultural activities such as growing of cucumbers, sweet potatoes, green pepper, tomatoes, okra and onions (Kamba, 2013). Therefore, agriculture is also one of the major economic activities in rural communities which are contributing to sustainable development as seen in the growth of associated businesses or entrepreneurship. Some of the income is turned into infrastructure, agricultural inputs as well as sending children to school.

## **2.2 THE IMPACTS OF MINING ON SUSTAINABLE DEVELOPEMNT.**

Mining is one of major initiatives which carry both favourable and unfathomable impacts on the environment. Most of the mining companies do not uphold the principles of sustainable mining which then leads to a number of environmental challenges and this will also affect the rights of the people in the affected communities (Dhliwayo, 2016). Hence, mining is associated with both positive and negative impacts which are also multidimensional to include environmental, social and economic impacts which affect the notion of sustainable development.

### **2.2.1 ECONOMIC IMPACTS**

#### **2.2.1.1 Employment**

There are a lot of skills and experience needed in the mining of granite. The various jobs associated with mining of the natural stone range from those which need high qualifications to those which involve learning on the job (Mbiba, 1999). This creates job opportunities for the people in the affected area. It is common knowledge that most rural communities in Africa depend on farming for subsistence and sell of the surplus for other basic needs therefore, mining becomes an alternative source of income to the jobless besides farming only (Chigonda, 2010).

This will decongest the agricultural sector and diversify the larger economic sector hence bringing in sustainability of development as there will be not too much reliance on farming only which can sometimes be affected by droughts thereby leaving the people's lives at gross ambiguity.

### **2.2.1.2 Infrastructural development**

Infrastructural development is one of the positive outcomes of the extraction of the natural stone. Some roads will also be constructed as the mining companies will need to transport the produces to the respective markets (Mtisi et al, 2011). In some rural areas gravel roads will be made which will also benefit the community with improved accessibility to health facilities and other resources. The same roads will also be used to transport products from other sectors like agriculture thereby enhancing the growth of sustainable economic and social development. In addition, some other facilities like schools, clinics and recreational amenities may be realized as benefits through Social Corporate Responsibility (SCR). The mining companies may help in developing some infrastructure in trying to embark on SCR which can also see them being exempted from high taxation. Hence, mining has the potential of bring infrastructural development to the affected area if the mining company takes corporate social responsibility earnestly.

## **2.2.2 ENVIRONMENTAL IMPACTS**

### **2.2.2.1 Siltation**

The various activities which take place at a quarry site mostly affect the geology of the area and consequently leads to soil erosion as the because of the soil which will have been loosened up. Whitlow (1990) says that the above processes, coupled with the destruction of vegetation along slopes will also lead to rock falls and mudflows. Therefore, mining practices have negative bearing on agricultural activities as water tables, river and dam water levels as well as water holding capacities will be will affected (Doro, 2012). The excavation and blasting of the natural stone in some areas has resulted in the lowering of water tables. Especially, during the rainy season, the runoff will carry the loosened soils to the rivers causing siltation. The siltation of rivers and dams will negatively affect the agricultural business which is also a key economic sector to many countries across Africa as many of them have agro-based economies. Hence, if agriculture is affected then there will be no sustainability as food security will have dwindled.



#### **2.2.2.2. Pollution**

Mining is often associated with pollution of water, air and soil. The chemicals which are emitted from the operations of the mining of granite have the potential of polluting water sources (Bulawayo Commissioner, 2007). The polluted water will become harmful to both wildlife and human beings. This can be minimized or eliminated if EIAs are being signed put into action before mining activities commence. Many mining companies neglect or do not take seriously the issue of Environmental Impact Assessments and social audits. The EIAs help to avert avoidable costs as there will be risk management plans as well as mechanisms to avoid man-made disasters. Therefore, if carefully implemented the EIAs and social audits will help to uphold and promote the principles of sustainable development.

### **2.2.3 SOCIAL IMPACTS**

#### **2.2.3.1 Diseases**

Among the social costs incurred due to the mining of the natural stone is the rise in prostitution in the areas surrounding the mining sites which involves quarry workers, villagers and vendors. Metcaf (2008) notes that HIV/AIDS has been reported to be high in areas affected by mining activities. The mining activities in many countries around Africa has seen an increase in HIV/AIDS orphans and single mothers hence more serious measures need to be taken to prevent such situations from becoming normalized.

#### **2.2.3.2 Loss of land**

Mining of granite has a lot of impacts associated with it which also include loss of land due to making of roads and the mining practices done as soon as the mine starts working. This will not only see clearing of land but also displacement of the people living in the affected areas. Loss of land becomes problematic especially considering the people living in rural African communities where agriculture has been the backbone of their lives. Rhodney (1972) argues that the colonial system in Africa left the rural communities without tenure rights to the land, hence striving to get compensation has proved to be of very little effect. Law in most instances override to rights of the affected people to compensation. Paradoxically, most of the land which might be confiscated for the sake of mining might be fertile and arable compared to the places where the people might be relocated to.

### **2.2.3.3 Destruction of cultural and heritage sites.**

Mining affects issues of culture and heritage in a negative way as there is the involvement of land clearance. There are historic sites and cultural sites that are regarded as sacred in Africa. However, when a claim has been purchased, the mine will operate at the expense of the beliefs and norms of the people affected (Pachauri and Bara, 2011). This will eventually lead to misunderstanding and conflicts between the local people and the mining companies. Therefore, this will hinder sustainability of development as there will be lack of cooperation from both sides as the local people will perceive the mining companies as their enemies and not as their partners in development.

### **2.2.3.4 Safety and health impacts on the mining employees.**

During the mining processes, many things happen which affect the people working at the mining firms. There are some cases of injuries or sickness which will be reported and if not carefully attended to, can lead to disability or death. Most companies mining granite are reported not to be good observers of safety and health issues which ensure employee safety at the workplace. Charizeni (2003) also notes that the injured personnel are often neglected and dumped without proper compensation especially those who do the least paid and hardest jobs. These employees will never be able fend for their families and the feeling of being redundant haunts them every time until they hit the grave. The Zimbabwean Labour Act Chapter 28 : 01 of 2005 also mentions that the employees must be safe at work and if challenges arise, they also must be compensated for work-related costs or losses. However, most mining industries take this issue of compensation as a cost hence they overlook or give it a lip service as they strive to attain maximum benefits from their mining activities at the expense of the affected employees.

## **2.3 THE LEGAL FRAMEWORKS COVERING THE EXTRACTION OF GRANITE.**

### **2.3.1 The Mines and Minerals Act**

The Mines and Minerals Act Chapter 21 section 373 contains the rights of the miners as well as those people in the communities affected by the mining activities. It mentions of sustainable mining practices which leads to deforestation and pollution. It also mentions of the associated fine or incarceration to be charged against perpetrators (Mines and Minerals Act, 1961). However, the Mines and Minerals Act chapter 21: 05 does not contain what should be the gains

to be awarded to the affected area and it also fails to clearly articulate issues of corporate social responsibility. The MMA also lacks clarity on the collection of revenue hence limiting the social accountability. A panorama of the issue will also leave someone with the realization that the MMA also does not emphasize on the penalties associated with environmental protection (Muranda, 2012). This gap allows for the mining companies to exploit the natural resources and neglect the idea of sustainable development as the affected area will not only be left depleted of its natural resources but paradoxically it will be left without any tangible development benefits to point at.

### **2.3.2 Rural District Councils Act**

The Rural District Councils Act Chapter 29: 13 is also one of the legislative instruments governing the conduct of mining and the promotion of sustainable development. There is a requirement for the mining companies to pay levies to the Rural District Councils as they are perceived as the custodians of development in their respective areas. The mining companies and their respective employees are supposed to pay tax to include unit tax, land levies and development levies (Maona and Ngorima, 2003). Therefore, the mining companies are supposed to respect the requirements of the Act in order to contribute to the revenue of the Local Authority which will help to fund the development programmes within the affected area. Ferris et al (1997) notes that the general assumption from everyone is that the area affected by mining activities should rightfully benefit from the extraction of its resources. However, in most cases the investors come from outside the mining area and do not have targets to develop the area but only to reap maximum benefits whilst developing somewhere else. The RDC Act stands as a watchdog and facilitator to promote sustainable development in the affected communities despite the associated challenges in enforcing it.

### **2.3.3 The Environmental Management Act**

Environmental Management Act (EMA) is one of the pivotal legislative instruments in promoting sustainable development, especially in the areas affected by mining activities. The Environmental Management Act of 2002 inquires that Environmental Impact Assessments (EIAs) must be conducted before embarking on major economic endeavours so as to diagnose and condense the potential threatening implications the initiatives might be associated with (Doroh, 2012). EIAs also aim at promoting favourable gains to both the miners and the affected

community. The Act obliges every person in the country to protect the environment for the benefit of the present and future generations through the security of ecological sustainable management and use of natural resources while promoting justifiable economic and social development (Maqona and Ngorima, 2003).

However, in most developing countries, Zimbabwe included, EIAs have not been fully and effectively mainstreamed and integrated into the environmental policies (Hollaway, 1999). In light of the above, studies carried out establish that most of the companies even some in the USA are not carrying out the EIAs before starting their operations, and this is quite disturbing as the operations are capable of causing various negative impacts or costs.

## **2.4 CHALLENGES FACED IN THE EXTRACTION OF BLACK GRANITE**

### **2.4.1 Lack of Congruency between the Governing Legislative Frameworks**

There seems to be lack of congruency amongst the legislative frameworks governing mining in most countries, especially in Africa. The mining laws juxtaposed with other laws seem not to tally which is a situation which brings in some kind of confusion and disagreements. There will be a deficiency in terms of the link between the laws governing mining and those governing other issues which might also be affected by the mining activities. Marwa and Warioba (2015) argue that even in Tanzania, the Land Act and Mining Act do not tally. There is a clash of rights between the miners and the locals as the villagers will be claiming to have rights for the same land given to the mine. This has fermented some form of vendetta between the people in the affected area and the quarrying companies. Hence, this is a clear testimony that lack of congruence between pieces of legislation is a challenge associated with mining, which can hinder progress towards achieving sustainable development.

### **2.4.2 Lack of Decentralization of Power over the Mining Activities.**

Decentralization is generally a process whereby the central government chooses to cede some of its powers to other lower levels of administration (Cawood, 2004). This grants capacity to the local authority to govern issues which affect the resources available within their spheres of jurisdiction. However, this is not the case with most of the African states. Most of the government structures, institutions and processes are centralized, hence handicapping the capability of the local authorities to reach their full potential in terms of administration and

service delivery. This has also affected the mining sector negatively as this situation promotes development at central level at the expense of the local area where the resources are being syphoned. Marwa and Warioba (2015) note that in Tanzania the Minister and the company sign what is called the mining development agreement (MDA) at national or central level for an instance the year 1994 saw the signing of an M.D.A by the Kahama Mining Corporation Limited. This was an encounter between the Minister and the company hence when the company went to the grassroots to implement the agreement, there some negative sentiments about it. This is because if there is lack of inclusion of the local people and leadership in matters which include the resources located within their territories, there will be misconception and controversy. Therefore, decentralization is a mechanism which can reduce both corruption at central level and confusion at local level.

### **2.4.3 Lack of Value Addition**

Mostly in Africa, the mining of granite is not associated with value addition or processing of the natural resource. Hence, the countries mining granite will export the raw stone and then buy it as a finished product from those countries to where they will have sold it. There is lack of value addition or processing of the natural resources in the African countries which perpetuates the dependence on finished goods from the first world countries. This implies that the products from Africa will remain products of low prices and those from the developed countries will be expensive, hence the poor will continue languishing in poverty (Whitlow, 1990). The concept of sustainable development will remain an item on the indigenous people's wish list. Africa does not always need help from the West or East but needs to create mechanisms which will see its rise through the exploitation of its own available resources for the betterment of its people. Lack of value addition is militating against mining countries' realization of the actual value of the products coming from their natural resources. There is need for Africa to make its own finished products from the black granite and sell it other continents. This is the only way and roadmap towards development of sustainability and curing the donor-dependency-syndrome which has diagnosed Africa since the colonial era.

### **2.4.5 Lack of Rehabilitation**

Lack of rehabilitation of the used mine sites is often a challenge associated with mining of granite and it also militates against the realization of sustainable development. There is lot of

waste material which is emitted during the mining operations. The waste which is deposited on the ground creates an eyesore leaving the site in a sorry state. In most cases, no rehabilitation of sites is done, hence the abandoned sites are mostly synonymous with open pits and scattered rock deposits which creates an unfavourable picture of the place. Despite the fact that sustainable mining has been encouraged since the World Summit on Sustainable Development in 1987, there is lack of commitment to that cause (Gualnam, 2008). The World Rain Forest Movement (2004) notes that the exploitation of natural resources which are mostly non-renewable needs those engaged to be more serious about sustainability issues as the resources may not be replenished. Even the aesthetic beauty is destructed hence more tree or other forms of vegetation need to be planted to maintain a better site (Eggert, 2001). Therefore, sustainable development will be satisfied if only the mining companies consider the issue of site rehabilitation as important.

## **THEORITICAL / CONCEPTUAL FRAMEWORK**

### **2.5.1 Dependency Theory**

The dependency philosophy argues that there is a channel through which resources move and that is from the unindustrialized states to the developed countries and the process disadvantages the former whilst it benefits the latter (Rodney, 1972). Some of the pioneers of the dependency theory are Prebisch and Singer who brought in some ideas in their pieces of work. Hence, the genealogy of this theory also goes back to the late 1940s. It also anchored by the idea that the movement of valuable resources in the world does not paint a fair picture as the process condones more benefits accumulate on the side of the already advantaged. This school of thought argues that there must not be a syndrome of relying much on external help or mechanisms but rather it promotes the upholding of mechanisms for resilience and self-improvement (Alvin, 1999). The theory can be intertwined with sustainable development concept as the concept also advocates for the animation of all levels of decision making to delve for long term achievements associated with less influence from the external environment.

The theory also worthiness in development where those involved have enough control and are able to achieve gains which reflect their full potential (Taush, 2003). The basic line of thought is that there must not be the exportation of the natural resources in their raw form and at their least prices. That means there will be perpetuation of an unbalanced world trade system biased on the advancement of only the already developed nations. This theory helps the researcher to

understand why the mining of the mining sector has to buy in to the idea of sustainable development. Hence, developing countries or Africa in particular, need to put more effort on industrialization. This will eventually help to emancipate them from yielding too little from the most valuable inherited gifts they have.

### **2.5.2 Sustainable Livelihoods Theory**

In general sense, 'livelihood' is a way in which one is able to survive through the capacity to acquire resources necessary for life to move on (Bernstein, 1995). Hence, livelihood is characterized by three basic things which include the devices or mechanisms, social possessions and initiatives which secure survival (Bebbington, 1999).

The basic understanding of sustainability interprets that there will be production whose benefits stay long and have seemingly lasting positive effects. Therefore, it is clear that sustainability is a concept which deals with the exploitation of current valuables with recognition of the endeavors' futuristic implications on both humans and the environment (Labbonne, 1999). In tandem with the above, the sustainable livelihood theory does not prioritize on people depending on help, especially of the most basic commodities. In fact the people must be capacitated to be able to survive without much help from outside their own means (Goodland, 1990). If aid is to come it must just help them as a jump start to a system which will be resilient. The achievement of any initiative is seen through time. The mining sector should leave the local communities with a sustainable source of livelihood which they can strongly point at as the achievement they got from the exploitation of the natural resources in their area.

## **2.6 COUNTRY EXPERIENCES : GRANITE MINING AND ITS IMPACTS ON SUSTAINABLE DEVELOPMENT.**

### **2.6.1 Granite mining in Nigeria.**

Black granite is also mined in Nigeria by a plethora of companies and it is perceived as a potential vehicle for sustainable development especially through infrastructural development. Egesi and Ukeignu (2013) note that the natural stone can be sold at a lucrative price and the number of its customers is growing every year. The mining of granite in this country is associated with both negative and positive implications on sustainable development. A number of people have been employed in Nigeria due to the coming in of the granite mining industry

hence it has the potential of improving the livelihoods of the local people. However, there are also some environmental and economic challenges which have materialized due to mining of granite in Nigeria. Guilbert (2017) says that the government has to make sure that the taxation system is improved whilst also protecting the rights of both the miners and the affected communities.

Nevertheless, in the year 2008, an official in the respective ministry governing mining and development announced that the ministry was going to make sure that the principles of sustainable development have been upheld through various reforms in the sector. Therefore, there is strict observation of the principles of sustainable development, it will help to avert degradation of the environment and loss of human life mainly from unsustainable mining practices.

### **2.6.2 Granite mining in India.**

India is one of the world's granite producing countries and granite mining in India started in way back during the advent of the 20<sup>th</sup> century as some block were shipped to America. Pachauri and Batra (2001) note that the natural stone as put on the list of minerals through the M.M.D Act of 1957. As the years went by, the processing of the natural stone emerged and has had some considerable products on the market. This situation is healthy for sustainable development to be realized as the granite produces will be sold at a better price than as it is in Africa were processing of the stone is not very visible. The Indian Minerals Year Book (2013) purports that the processing of the natural stone has led to the realization of a number of dividends like infrastructural development and as well revenue for government led development initiatives.

In order to improve the sustainability of development brought to the table by granite mining, the government formulated and effectively implemented them for overall development of a mining sector which is environmentally sensitive. Mehta (2002) notes that the policy which deals with imports in India forbids mining companies from shipping granite which has not been trimmed or added value. The policy also condones the capitalization of the by-products of the mining process to reproduce more objects like *terrazo* which is modified granite. However, challenges are also visible in terms of pollution and disruption of the natural environment but all in all; the practice of granite mining in India can be a better lesson to other granite mining countries especially in Africa in order to achieve sustainable development.



### **2.6.3 Granite mining in Australia.**

Despite some associated challenges, mining of granite in Australia has been noted as a vehicle of promoting sustainable development in the country. The natural stone brought a number of benefits to include economic and social equity benefits especially in terms of employment creation and infrastructural development. Ferris et al (1997) notes that there has been some advancements in the processing of the natural stone hence the prices of the products from this natural resource have decreased and become common especially those for household level. Even the construction of sky-scrapers has also seen granite being used. Hence, the precious natural stone has become an international product of a considerable demand. Especially in the Southern part of Australia, positive results have accumulated evidenced by economic development and improvement of livelihoods.

The Australian Mines Acts also oblige the miners to assess the impacts of their mining activities before they commence their work at the chosen cite (Flint, 1988). The benefits of this system are that it encourages the development partners to address environmental issues at the earliest stage of the development initiative. Therefore, this is a lesson which needs to be learnt by other states if they really want to address the issues of sustainable development which is premised on the strict observation and adherence to environmental laws.

## **2.7 CHAPTER SUMMARY**

This chapter had made an effort in unearthing what other scholars have written in relation to the topic under study. What can be realized from the above is that the major economic activities in rural communities include agriculture and small-scale mining, the mining of black granite is also accompanied by both positive and negative implications on sustainable development, the legal frameworks governing the extraction of black granite are not well aggregated to suit the requirements of sustainable development and hence, there is the need to solve the challenges faced in the extraction of black granite. The assessment of other countries' experiences also makes the research to comprehend the issue of granite mining in other countries and how their respective governments have managed to cope with the demands of sustainable development.

## **CHAPTER 3 : METHODOLOGY**

### **3.0 INTRODUCTION**

At this stage the researcher gives an account of the approaches which were utilized to gather and analyze the requisite information acquired during the study process. The approach chosen by the researcher utilized mixed methods of research. Both qualitative and quantitative methods were exploited. To substantiate the above, the researcher puts the chapter into themes and sub-themes which explore further on methods and techniques of sampling; data collection, data presentation and analysis, ethical considerations as well as a summary of the chapter.

### **3.1 RESEARCH METHODOLOGY**

Methodology is mostly perceived as a structured formula used to achieve the research's aim (Maxwell, 2004). Woodyard and Chambers (1989) noted that it is also an assessment of the approaches, systems, ideas and techniques which the researcher uses to fulfill the research demands. In addition, Epton (1983) posits that it is also an endeavor done in a systemized way in order to fulfill the study goal.

### **3.2 RESEARCH DESIGN**

Stuka (1990) views the research design as the all-embracing strategy on how data is to be acquired, assessed and analyzed. Maxwell (2004) posits that it is also a formula how the research will provide solutions to the study questions. In addition, Pansewang (1988) states that it is a way in which the research process is to be carried out whilst maintaining minimum costs as much as possible. In addition to the above, he also argues that the research design is about the concepts which determine the research parameters. The researcher utilized the case study approach which also used mixed research methods as it facilitated the realization of an in-depth understanding of the factors relating to the issues affecting the mining of black granite and also the challenges posed to the affected communities. Casey and Lurry (1987) argue that the research is not restricted into just being only qualitative or only quantitative but can rather contain both elements. Kothari (2004) also notes that the quantitative dimension emphasizes much on figures and quantities whilst the qualitative aspect deals much with qualitative phenomena and perception. Hence, mixed methods were used in trying to have a holistic approach on understanding the issues related to the nexus between granite mining and sustainable development.

The qualitative dimension of the research is seen when it analyses data and tries to deduce meaning from what the respondents disclosed as their perceptions and experiences. The qualitative dimension of the study involved a lesser number of respondents as because of the intensity of the data collected which could not give more space for a larger number of respondents. Qualitatively, in-depth interviews as well as documentary reviews were used to collect data. On the quantitative side, some questionnaires became the main method of accessing data for the study.

### **3.3 SAMPLE SELECTION**

The section of a sample can generally be described as the selection of a subset of individuals from a certain population to estimate characteristics of the whole population. It can likewise be characterized as demonstrating procedure or system of selecting a suitable specimen, or an agent of a populace with the end goal of deciding the parameters of qualities of the entire populace (Bryman, 2007). There is a dual aspect in terms of sampling methods to include the probability and non-probability elements. The non-probability angle interprets the nomination of elements which are not selected on *ad hoc* basis but a limited number has the probability of being selected. On the other side of the token, the probability aspect unveils a process whereby elements are chosen without a chosen sequence and all elements have the probability of being picked up (Maxwell, 2004).

Pansewang (1998) notes that it is not a mandate that the all components need to have equal chances of selection but it differs with the purpose and well the depth of information needed. Therefore, the research had to capitalize on mixed approach to sampling whereby the different techniques were used to unveil as much data as possible whilst also considering the quality of the data unveiled. This was mainly geared towards accessing different participants at various levels and with varying information which is commensurate with the understanding of the impact of black granite mining on sustainable development.

### **3.4 PURPOSIVE SAMPLING**

Epton (1983) is of the views purposive sampling as a technique whereby samples are chosen in consideration of their expertise, knowledge and skills on the issue at hand. Warren (1988) also substantiates the above sentiment by saying that it is also the section of components with regards

to their ability to unearth the required data. The researcher had to choose respondents whom he thought were best in terms of meeting objectives of the research. The study considered skills, experience and knowledge possessed by the chosen individuals in understanding the activities associated with mining of black granite as well as their effects on sustainable development of Mutoko and Zimbabwe at large.

This sampling method can also be very important in cases whereby the research needs to access a certain sample in a short space of time as well as where proportions are not of basic priority (Eichler, 1989). It also helps in the acquiring of specific information from those who possess expertise or experience on the matter which helps to access data of more depth and quality. The research had to make use of this technique to ensure the selection of council employees, government officials, traditional leader and mining employees as these respondents had direct link with and knowledge of the mining activities and their impacts on sustainable development.

### **3.5 SIMPLE RANDOM SAMPLING**

Maxwell (2004) notes that simple random sampling denotes a condition whereby all elements have the equal chance of being picked up as participants in the research process. It was a lucrative idea to use these techniques as the researcher was confident that the components selected would actually represent the whole populace in the district under study. This sampling method was utilized under the non-probability banner and in this regard every person within the mining community had the opportunity of participating and giving information on their perspectives, perceptions and experiences on the mining practices as well issues of sustainable development in their respective communities. Michalos (1991) has posted that simple random sampling is advantageous when one considers the smooth flow of the process as well as equity of representation. He also argues that he finds it unnecessary to split the larger populace in to micro-groups as this might also leave room for unequal representation and lack of generalizability of findings. Hence, the basic argument here is that the process of choosing the participants had to give room for equality in terms of the selection probability.

### **3.6 METHODS OF DATA COLLECTION**

Blalock (1970) argues that several, if not all, fields of study finds data collection an indispensable element of the research process. It helps the researcher to acquire the necessary evidence to substantiate or refute a given hypothesis. Despite the differences in approaches, the

main objective remains of collecting the requisite data needed to answer the research questions. In the process, the research utilized questionnaires, in-depth interviews and documentary reviews to collect the requisite data needed to answer the question on the impact of black granite mining activities on sustainable development in Zimbabwe, particularly in Mutoko District.

### **3.6.1 IN-DEPTH INTERVIEWS**

Epton (1983) notes that in-depth interviews are part of a qualitative study whereby the research targets a relatively lesser number of participants in order to unearth an understanding of the perceptions on a certain issue. To add to the above, Boyce and Neale (2006) noted that they are very significant in cases where there is need to acquire information of much depth and detail without omitting the major issues that seek to answer that question about the issues at stake. Therefore, there will be key respondents to offer detailed information on mining of black granite and its relationship with issues of sustainable development. The in-depth interviews are more or less like questionnaires only that interviews involve more of audio dialogue. The beneficial part, especially of the one-on-one interviews, was that there was quick access to the needed data and there also was flexibility as the questions could be repeated or clarified. When the participants proved to be failing to comprehend the general scope of an issue they had the opportunity to ask their own questions to delve further explanation and to be given clarity on the questions they were being asked. As if is not enough, the interviews helped the researcher to have more and deep understanding of the particular issues through facial expressions and gestures of the respondents.

Furthermore, the research also used an interview guide with questions structured as a way of giving assistance to the research in order to avoid the process from deviating from the initial call, hence remaining within the parameters of the study. The researcher interviewed participants who included the CEO of Mutoko RDC, government officials, traditional leaders and council employees.

### **3.6.2 DOCUMENTARY REVIEW**

Maxwell (2004) notes that documentary reviewing can be noted as a practice whereby the researcher classifies, assesses and analyzes data from written documents which deal with certain issues of interest. Hence, Bailey (1994) says that the documentary approach constitutes analyzing the documents containing certain information which is linked to the topic of the study. Stuka

(1990) also argues that this method is usually underutilized or used only as supplemental source of data in social research. This researcher saw importance in the method as it helped him to support his arguments from an academic angle. The researcher went into the libraries and various offices to access mails, reports, books and journals which contained information relating to the study topic. This helped the researcher a lot especially in terms of acquiring more information on the topic and analyzing the existing literature which talks about issues related to mining of black granite as well as its impact on sustainable development. The process incurred less costs as compared to other methods like in-depth interviews which had challenges in securing appointments.

### **3.6.3 QUESTIONNAIRES**

Blalock (1970) notes that questionnaires are a significant apparatus for the collection of data without involving facial expressions or oral answers from the participants. Sometimes the questionnaires can be structure or it can also contain questions which are not structured, both with the aim of accessing data from the respondents through writing. Black (1999) generally describes it as a study apparatus which comprises of a procession of questions aimed accessing data from targeted participants. The questionnaire was answered by villagers within the communities surrounding the mining sites as well as the mine employees and former employees. Both open-ended and closed-ended questions were utilized during the research process. The open-ended questions were devised in a way which gave room for the participants to say any information that came into their minds relating to the question whilst the closed questions would require the participants to select an answer from those already provided on the questionnaire hence depriving them from writing their own answers. The participants who got the questionnaires included the Chief Executive Officer for Mutoko Rural District Council, some Headmen from the mining communities, Council employees and government officials from various departments. This particular group of individuals constitutes the most relevant people as they usually hold meetings with the quarry operators and discuss issues which relate more to mining of black granite and its subsequent relation to sustainable development.

The questionnaire helps the research to be freer from bias from the researcher as the data to be acquired may be of given standards and there will only be the analysis of the overall response to come up with a justifiable result or answer. The research was furnished with detailed information

since the people who responded to the questionnaires were directly involved or affected by the mining activities hence they hand first-hand information. This managed to prick the researcher's conscience on the realities of the mining activities and their effects on sustainable development. Many issues were answered as the questionnaires gave space for the respondents to answer the question in the absence of the researcher. This was due to the fact that some respondent naturally shy to respond to questions in the presence of the researcher; they lose esteem.

### **3.7 DATA ANALYSIS**

Pansewang (1988) notes that data analysis can be perceived as a practice of appraising and weighing data provided under every aspects of study. This process involves the organization of data so that the researcher will be able to deduce meaning from the acquired data. In a more general sense, the basic priority of data analysis is for the researcher to get a picture of the data's implications and connotations. This is also a critical stage for every research as it is when the research will be able to come up with conclusions about what the study managed to unveil. Mixed methods were used to analyze the acquired data. The qualitative dimension utilized content and thematic analysis whilst the Statistical Package for Social Sciences was for the quantitative aspects.

#### **3.7.1 THEMATIC ANALYSIS**

Maxwell (2004) notes that it is a method of analyzing data qualitatively through the assessing and evaluating themes from the acquired data. This is conceived by most qualitative researchers as an authentic method of analyzing data as it allows for a synthesis or blending of the study questions with the respondents' experiences and perceptions. In trying to categorize data, the researcher crafted themes under which specific data would be presented. The researcher used coding in order to come up with themes relating to the data produced by the interviews and questionnaires. Some themes were also deduced from the study results on the impact of black granite mining on sustainable development, challenges associated with granite mining and also on economic activities in the District of Mutoko. Therefore, the themes were analyzed in relation to specific study questions.

#### **3.7.2 CONTENT ANALYSIS**

A plethora of researchers have utilized content analysis to analyze data from various accessible written documents. It has also been described as a way of condensing voluminous text into

smaller content assemblages (Blalock, 1970). This is a worthwhile technique which is very useful in analyzing data from diverse sources which may include printed documents, interviews, radio shows, results from observations and e-material. Leiner (2014) notes that the ultimate goal of this technique, is to ensure that the researcher will have enough appreciation of the topic being studied. The researcher managed to gather data from several sources and paraphrase it into simpler and understandable context which helped in giving answers the questions of the study. It helped to unearth the effects of black granite mining on sustainable development as well as an advanced understanding of the participants' perceptions over the effects.

### **3.7.3 STATISTICAL PACKAGE OF SOCIAL SCIENCES (SPSS)**

Besides thematic analysis and content analysis, the study also used the Statistical Package of Social Sciences to analyze quantitative data. It is a software which was crafted back in the late 1960s and was designed to convert data from the structured questionnaires into more understandable information. It makes use of applications designed for statistics (Trend, 1978). The study utilized the SPSS as an apparatus to quantify data gathered through the administration of structure questionnaires. This helped the researcher to find the response rate which was also presented in form tables. In addition, the SPSS helped the researcher to quantify data on the perception and experiences of the participants on the effects of black granite mining on the sustainable development of Mutoko and the results were then presented through the use of pie charts.

### **3.8 ETHICAL CONSIDERATIONS**

Murphy and Hahannsen (1990) are of the view that ethics in research are the consideration of the effects the researcher's behavior, values and attitude towards the respondents as well as the information they provide. Michalos (1991) substantiates the above sentiment by noting that social scientists are anticipated to protect and promote professionalism, integrity, honesty and independence to the maximum level when engaged in a social science research. Here the researcher is burdened by the task of considering the damage or loss that the respondents might face due to their participation in the research. Hence, Maxwell (2004) argues that the researcher should manage the risks likely to be experienced by then respondents and must strive to keep them very low. Hardings (1987) also encourages researchers to treat their participants with velvet gloves as their contributions are very vital to the realization of the research goals.



### **3.8.1 INFORMED CONSENT**

Eichler (1989) notes that if a participant is appreciative of the general scope of the research, he or she will voluntarily offer his or her consent. Shipman (1981) substantiates the above by arguing that the participants must agree first that they are going to take part in the study. The researcher managed to uphold this principle by firstly and clearly outlining the what the research is all about and what it seeks to fulfill and then let the respondents sign a consent form. The consent form was a written and signed document to prove that the respondents participated free from any form of force. Most participants tend to deviate from the initial call of the research and embark on their own campaigns if they do not clearly understand the vision of the research. Hence, the upholding of the principle of informed consent proved to be a way of protecting both the researcher and respondents from abuse or manipulation. The researcher discovered that this ethic facilitated the building of mutual trust between the researcher and the respondents as well as enhancing the production of data of better quality from the respondents.

### **3.8.2 INDEPENDENCE**

Independence in social science research can generally be described as the condition whereby the participants in a research are free from any form of coercion or influence over their responses. Tadrial(1989) also notes that the researcher should ensure that the participants enjoy autonomy, flexibility and discretion in terms of the responses they offer. This will make unsure that the respondents are immune from making impulsive contributions. The research managed to secure the independence of participants by assuring them that the data which they provided was going to be destroyed deliberately after the research process had ended. In addition, the respondents were also told that the research did not ostensibly carry any hideous political motives but was done sincerely in partial fulfillment of the researcher's academic pursuits. This helped to boost esteem, zeal and freedom of participation amongst the participants.

### **3.8.3 HONESTY**

Honesty is supported by three main anchors which are openness, trustworthiness and responsibility (Warren, 1988). Being honest means that your respondents are guaranteed that the research does not have other hidden intentions besides the one presented to them and that the information they provide will solely be used to fulfill the initial intent of the research. What it simply means is that when there is ignorance of the real purpose; the research will be susceptible

to abuse. Opaqueness is not condoned when one is conducting a social science research. Hence, in order uphold the standards of being honesty, the researcher destroyed all the answered questionnaires sooner after presentation and analysis of findings. This was in order to avoid future temptations of using the information for other purposes as it was the agreement. In addition to the above, the researcher also cited consulted sources in order to avoid the enticement of stealing academically.

### **3.9 CHAPTER SUMMARY**

To summate this chapter, it managed to reveal the numerous methods, techniques and apparatus utilized by the researcher to gather and analyze the data. The chapter displayed a meticulous and comprehensive study design which utilized a mixed approach to research. The research design reflected both qualitative and quantitative dimensions. The chapter also managed to show the tools used by the researcher to collect data as well as those used to analyze it. Techniques used for sampling as well as methods for collecting and analyzing data, were also discussed under this chapter. Ethics of research which were used are also outlined and articulated showing the researcher managed to uphold them. All the above, were a design to certify that the researcher would be well guided and organized during the conduct of the research in order to produce study results which would bear credence, authenticity and reliability.

## **CHAPTER FOUR : PRESENTATION AND ANALYSIS OF FINDINGS**

### **PRESENTATION AND ANALYSIS OF FINDINGS**

#### **4.1 INTRODUCTION**

Marshall and Rossman (1990) postulate that ‘data analysis’ can be defined in the context of aligning, structuring and giving sense to the data found during the research. Patton (1980) also notes that data presentation and analysis helps the researcher to clearly articulate and encapsulate acquired data as well as to ascertain both the nexus and differences amongst certain issues. Under this section, the research presents the data which was acquired while researching on the impact of black granite mining on sustainable development of Zimbabwe, specifically in Mutoko District. Themes and sub-themes as well as tables and figures will be utilized to showcase the data from the study. The themes generated from the findings include; the economic activities in Mutoko, the positive impact of granite mining, legal frameworks covering mining and the challenges associated with mining of black granite.

#### **4.2 RESEARCH FININDINGS**

##### **4.2.0 GENERAL OVERVIEW OF THE RESPONDENTS**

###### **Sample Size**

William (2011) postulates that a sample may be regarded as a part of the population whose units can be used represent or reflect some facts about the larger population. The research sample size was 53. Hence, further exploration of the above will be exhibited in the table 1.

**Table 1: The overall overview of the respondents.**

Participants	Targeted Population	Accessed Population	% of sample size
Government Departments	4	4	100%
Traditional Leaders	3	3	100%
Rural District Council and Councilors	6	5	83.3%
Mining employees	15	11	73.3%
General public	25	19	76%
Total	53	42	79.2%

Zhi (2014) notes that a fathomable and authentic sample is the one which is more than half of the sample size. A sample size which fails to reach 50% will not display a satisfactory representation and will also fail to reasonably address the study's questions and objectives (William, 2011). The data presented above unveils that the sample used was far above 50% which was advocated for, by the two scholars above as the minimum limit for an authentic sample. Hence, the overall response of 79.2% is a clear testimony of the research carried out bears soundness and reliability as well as also less susceptible from preconception and errors.

## 4.2.2 QUESTIONNAIRE RESPONSE RATE

The table below highlights the number and percentage of the questionnaire and respondents.

**Table 2: Responses to the questionnaires**

Population Sample	Administered Questionnaires	Number of completed questionnaires	Number of questionnaires not responded to	Response rate %	Non-response rate%
Mining employees	15	10	5	66.7%	33.3%
General populace	25	17	8	68%	32%
Total	40	27	13	67.5%	32.5%

**Source: Raw Data**

The data presented show the outcomes on responses to the questionnaires distributed to the mining employees and general public. The questionnaires disseminated to the mining employees show a response percentage of 66.7% which shows that the responses were above the average expected outcome. Likewise, 68% was also recorded as response rate from the general public which is also way higher than the proposed average. 67.5% of the targeted respondents managed to return their completed questionnaires whilst 32.5% from the targeted population failed to complete and return the questionnaires for the reason that some had busy work-related as well as trying to avoid political victimization as some responses would carry political undertones. It has been a political culture in the country whereby people choose not to fully participate in public or private which they do think might involve political connotations because of the history of victims of political labelling and fear of secret agents.

## 4.3 ECONOMIC ACTIVITIES IN MUTOKO

### 4.3.1 Gold Panning

Mutero (2016) notes that gold panning as one of the economic activities in the District of Mutoko. She notes that most of the people in Makaha and Chisambiro areas are engaged in gold panning as part of their sources of living. The practice of gold mining is perceived as a form of alternative employment especially to the people who are jobless. Despite the fact that mining of gold is seen as muddy and hazardous, it is also seen as money-spinning and fruitful. The people involved in it also view it as a stepping stone to alleviate them from poverty and destitution (Kori, 2006). Therefore, respondent 1 from the government officials said,

*“the people engaged in panning in the Makaha area find it as their only way of survival in this economic predicament that our country is currently stuck in. They often say that mining of gold also helps them to acquire some maize seeds and other house hold needs.”*

Therefore, one can notice that gold panning earnings in the Makaha area of Mutoko enables the acquiring of agricultural inputs and other livelihood projects which then improves agriculture and other economic activities. Hence, it also strengthens the idea of sustainable development as there will be the creation of diverse sources of income for the betterment of livelihoods. However, in most cases gold panning has its own associated challenges which include siltation of rivers and dams as well as destruction of river beds. This will also negatively affect those in the business of farming as there will be water shortages due to siltation. Hence, the practice of Gold mining is accompanied by both positive and negative effects on sustainable development.

#### **4.3.2 Agriculture**

**Figure 1: Tomatoes, carrots and green paper packed at Tabudirira ready for market.**



Agriculture is one of the key economic activities in the District. Most people in the rural communities of Mutoko are engaged in market gardening and producing extremely well. Respondent 2 from government officials noted that,

*“the cheaper prices and a diversity of agricultural commodities found in Mutoko district, lure a lot of people from various provinces of Zimbabwe to come here including some from as far as Bulawayo and Masvingo. Cucumbers, green pepper, tomatoes, onions, green beans, okra and mangoes are found in large quantities in Mutoko. Many people have managed to send their children to school because of the agricultural products they sell.”*

This shows that agriculture is one of the major economic activities going on in Mutoko District which positively contribute to the uplifting of the people’s livelihoods. The people in Mutoko have small pieces of land which they use to farm especially along rivers. The most facilitating factor is the geological set up of Mutoko as the rock underneath the surface helps to create water reservoirs which facilitates irrigation of crops during the drought season. This has also contributed to development as people engaged in this small-scale farming have been able to start some successful retail businesses, constructed brick houses and send children to school. However, over the past decade the agricultural business has been affected by recurrent droughts and unfavourable rain patterns. This has militated against the production levels of the district’s agricultural sector. Nonetheless, agriculture remains one of the key economic activities in Mutoko District despite the associated challenges.

#### **4.4 THE LEGISLATIVE FRAMEWORKS COVERING THE EXTRACTION OF BLACK GRANITE IN MUTOKO.**

55% of the 65.7% respondents were of the view that the legislative frameworks do not facilitate for the fruition of sustainable development in as far as the mining of black granite might be concerned. Respondent 3 from the government officials noted that,

*“the legislative frameworks do not tally in terms of administering the extraction of natural resources in the District. The omnipotent Mines and Minerals Act gearshifts all the mining initiatives in Mutoko, even issuing mine claims and collection of royalties. Whenever and wherever a mineral is discovered, the act overrides all other acts, such as*

*the Rural District Councils Act, Traditional Leaders Act and Environmental Management Act. Hence, other legal instruments are left seemingly redundant”*

The Mines and Minerals Act (Chapter 21:05) does not mention communal paybacks and the role of the affected people in mining, it fails to clarify if the companies are obliged to embark on corporate social responsibility (CSR) or not. There are no clauses which state issues of social-accountability, especially on how the financial benefits of mining are to be exploited. As if it is not enough, provisions on environmental protection are not well aggregated and strict on administering the mining practices in the sites where mining will be taking place. This shows that the power given to the Mines and Minerals Act is overbearing to the extent of negatively affecting the Council from implementing useful economic policies which will ensure the fruition of sustainable development in the District. Hence, whilst it is the one which grants the power to the ministry governing to mining, the RDC Act also mentions of the Local authorities as the custodians of local development. There is no congruency between these two Acts as the MM Act always overrides the RDC Act, hence this militates against the realization of the actual community needs.

In conjunction with the above, respondent A from the Traditional Leaders noted that,

*“the companies do not compensate land which is lost because of the mining actions especially in Makochera area. We don’t know where these people come from and they will be possessing certified licenses of operation and even the Council has no power over them.”*

Hence, from the headmen’s words, it can be noted that the mining activities take away land from the local people but the council has no power to make sure that the people affected get compensation. Compensation goes only towards infrastructural losses and not for land. Despite the fact that councils are legitimate stewards to manage natural resources in their areas of jurisdiction, mining companies often circumvent them due to the weaknesses of the Mines and Minerals Act. Eventually, this denotes that Mutoko Rural District Council does not have power over the mining of the abundant resource because the government chose to declare the natural stone as a mineral and officially shifted its control to the Ministry of Mines and Mining Development, which collects royalties via MMCZ, the country’s sole marketing agent for minerals. Hence, this shows that there is also lack of decentralization of power which can enable



local authorities to administer the natural resources in their areas of jurisdiction. Hence, sustainable development is hindered to a handicapped speed.

#### **4.4 THE IMPACTS OF BLACK GRANITE MINING ON SUSTAINABLE DEVELOPMENT OF MUTOKO**

The concept of sustainable development emerged due to the growth of consciousness on the prerequisite to conserve and preserve the mostly finite natural resources. Dreschler (2001) is of the view that sustainable development is a system of managing the finite natural resources and utilizing them in a mode which enhances long term developmental benefits. Hence, the impact of granite mining on sustainable development is measured by what is called the three masts of sustainable development which include environment, economy and social equity.

**Figure 2. The pillars of sustainable development.**



## 4.4.1 ECONOMIC IMPACT

### 4.4.1.1 Poor road networks

**Figure 2: Heavy weight truck carrying a granite block to Mozambique.**



Roads have been constructed to facilitate the transportation the granite blocks to the exportation bays thereby also benefiting the community with better road networks. However, the roads are not sufficient enough to cater for everyone as they mostly benefit those who live in villages which are in better proximity to the roads. Respondent 2 from the council employees noted,

*“There are also reports that most of the roads to the quarry sites are not well surveyed and are also poorly maintained.”*

This shows that the mining companies are not targeted at long term benefits of the communities as the roads are also poorly constructed and are described by weak alignment. Hence, one can notice that the use of heavy machinery, such as graders, front-end loaders, and heavy trucks, contributes to the rapid deterioration of the roads.

#### **4.4.1.2 Loss of land**

In some instances, the land of villagers has been confiscated for the sake of constructing roads for the mining activities. Due to the fact that agriculture is the backbone of the District's economy, the losses in land interpret a draw back in terms of livelihoods of the affected people. Because of the communal system of land tenure, where farmers lack tenure rights to the land, efforts to claim compensation have been unsuccessful with farmers being compensated only for houses and other infrastructure. Respondent 4 from the council employees noted,

*“The villagers always come here asking for clarity on why their land is being taken away from them without compensation and the council not acting on the issues. Paradoxically, some of the land lost to quarrying is among the most fertile in a district where the soils are largely sandy and infertile.”*

Hence, one can see that as black granite quarrying has also removed some of the able-bodied men from the fields to the quarry sites, it has promoted the creation of labor blockages for peasant agriculture. The situation has seen mostly the children and their mothers as the labourers in agricultural activities hence reducing the production levels. The money which is acquired from working at the mines is sometimes not sufficient enough to cater for all the basic necessities of the families hence also negatively affecting food security. It is from the above situation that the population considered as the dependent population are now the ones responsible for growing of crops which is not a healthy situation for the rural communities affected.

### **4.4.2 ENVIRONMENTAL IMPACT**

#### **4.4.2.1 Pollution**

Noise pollution is also a problem that is experienced in the rural communities of Mutoko where mining of granite is taking place. High-decibel sounds are produced when the stones are being blasted, which produces echoes and shocks which may cover a radius for about 20 miles from the blasting point. This creates a noisy and uncomfortable environment which does not only affect the human beings but even the infrastructure they possess. Respondent 3 from the headmen said,

*“I have received many cases where the villagers come to me saying that their houses now big cracks and they fear for their lives as the houses can fall any time. Surprisingly, if we*

*approach the mining companies, they just give them promises that they will do something and that will be the end of it.”*

Hence one can notice that the mining of granite does not create noise pollution only but also life risks as the houses in proximity to the mining sites daily receive shocks from the blasting of rocks. This creates lines of weaknesses on walls of buildings in the in nearby villages. This has affected even some of other infrastructural facilities which were given to the community as part of social corporate responsibility. Hence, the challenge is not just noise pollution but also infrastructural dilapidation, which is eventually experienced by the affected communities.

In addition to the above, the chemicals which are used at the mine sites carry some toxins and pollutant material which affect the environment. Respondent 1 from the council employees noted that,

*“Mutoko is also at risk of pollution due to the chemicals and substances used during the mining process. Some oils and other harmful substances are not correctly and properly disposed hence; when rains come they find their ways to the rivers and dams. This has negatively affected the aquatic life in Mutoko and also polluting even the ground surface.”*

From the above one can notice that the environmental laws regarding the disposal of chemicals are not being well-observed. Thus, it is causing more harm to the affected communities that good. Under the Environment Management Act of 2004, all major development projects should be carried out after Environmental Impact Assessments (EIAs) have been done so as to identify and mitigate any negative biophysical, economic, social, and cultural impacts that a development venture may cause. The mining companies seem not to be conducting or working with the findings from, EIAs to improve the environmental conditions within their areas of operation.

### **4.4.3 SOCIAL IMPACT**

#### **4.4.3.1 Social Challenges**

The social benefits due to the establishment of black granite quarries in Mutoko are not commensurate with the huge profits that the quarrying companies are reportedly getting. In addition, the costs which are born by the communities because of the mining activities are more

than the benefits accrued from it. Thus, the communities get the lowest or even futile benefits from the mining activities.

Respondent 6 from the Council employees posited that,

*“one of the social expenses incurred through black granite extraction is the growth of cases on prostitution and delinquent behavior in the communities in proximity to the mines. The percentage of HIV/AIDS infections and related deaths has hiked due to the expansion of the mining activities in the District. More children has also been left parentless because of the pandemic disease.”*

Hence, the knowledge that HIV/AIDS is a killer disease makes one to note that mining of black granite in Mutoko is accompanied by a quagmire of challenges. The issue of diseases which are currently diagnosing the area, does not only prophesy death but also poverty and suffering as children of the affected people will often be at the receiving end.

Despite the fact that the mining activities have also created job opportunities for the villagers some related challenges are also visible. Because of the unskilled nature of most of the labor force, some school pupils have opted to drop out of school, hoping to find employment at the quarries once they turn eighteen. And the unfortunate thing is that such a hope is being realized by many of these school children. Respondent 5 from the council employees said,

*“School dropout cases have reportedly increased in schools around quarry sites in Mutoko North Constituency. For example, 45 percent of dropouts at Kowo Secondary School were attributed to the same problem.”*

This has become another challenge militating against development in the District. Since unskilled labor attracts low wages, the cycle of poverty in these areas will further be perpetuated as the dropouts’ children are also likely to do the same. To make matters worse, such lowly paid jobs will also be based on a finite resource. It is, therefore, ironical that while some of the quarrying companies have helped by the construction school blocks, mining activities unintentionally contribute to school dropouts.

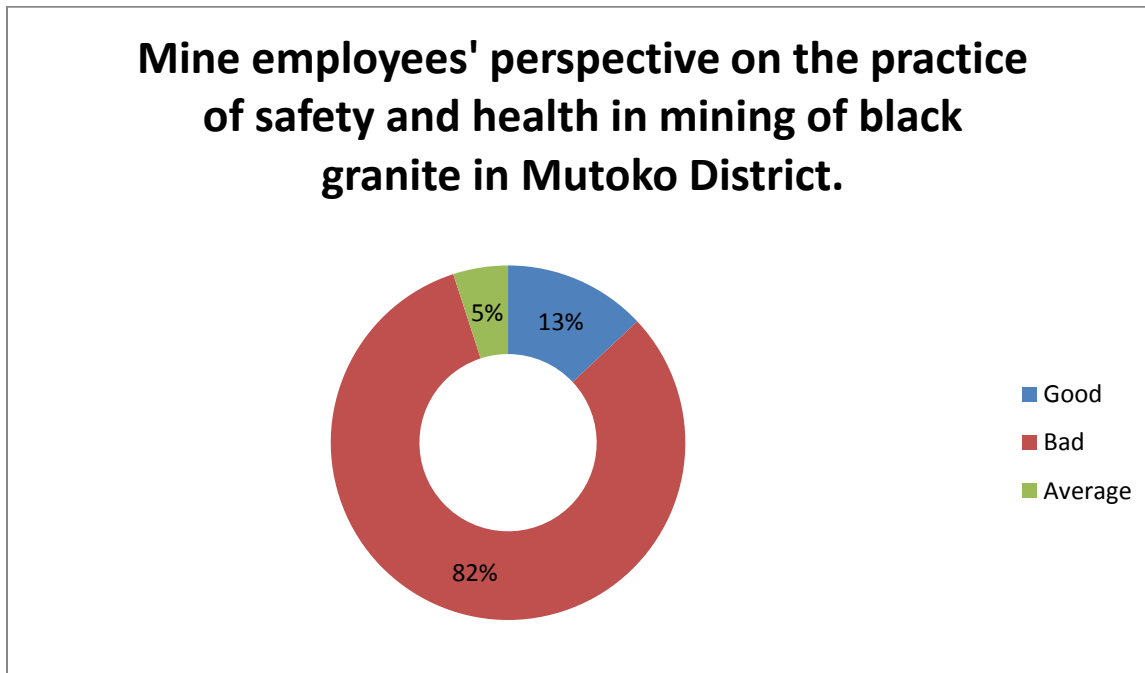
#### 4.4.3.2 Challenges on culture and heritage

Graves have also been demolished in some areas, especially in mountains, due to black granite quarrying. Respondent C from the Traditional leaders noted,

*“our Budja culture is being eroded and our history is being erased. A classic case is of Mt. Murema in Kawazva where human remains have been exhumed through quarrying operations.”*

This shows that the practice of granite mining is negatively affecting the culture and heritage of the local communities. The people of Budja tribe of Mutoko believes that the resting places of deceased ones should be treated with utmost respect and many villagers have reacted emotionally to activities against such beliefs. Quarrying operations have also decimated other sites held sacred by villagers. All this has caused some cultural friction between quarrying companies and villagers. Hence, the local people feel betrayed and unrecognized by the government as they regard the destruction of their ancestors’ graves as an anathema.

#### 4.4.3.3 Poor safety and health practices for the quarry employees



**Figure 4: Research Data 2017**

82 % of the respondents argued that safety and health principles are not being upheld as stipulated in the Labour Act. Respondent 4 from the government official noted that,

*“mining of black granite has contributed to infections, sickness and loss of some lives. The work done at the mine sites is very heavy especially when one is using the jack-hammer. It weakens the backbone and the naval system. Some workers have been maimed; some are agonizing on death beds and wheel chairs, whilst some have already bitten the dust.”*

Bearing in mind the contention that the affected miners receive only but meager benefits, the family members of such people will be the ones to suffer the consequences. This will perpetuate a line age of poverty-stricken families who suffer from their ancestral problems cascaded to them. The most uncomfortable fact here is that the jobs offered to the local people are often of very low wages and the most dangerous. Hence, when they are exhausted or injured they are left with nothing to point at as their long term benefits acquired from their sweat and that is the tragedy for the people in Mutoko mining communities.

## **4.5 CHALLENGES FACED IN THE EXTRACTION OF BLACK GRANITE IN MUTOKO**

### **4.5.1 Incongruent Legislative Frameworks**

The legislative frameworks governing the extraction of black granite in Mutoko do not augur well with each other. Respondent E from the Council employees noted that,

*“the Mines and Mineral Act and other legislative frameworks do not complement each other in terms of how minerals are extracted. It is my wish that the Mines and Minerals Act and other Acts of Parliament covering the mining of granite be revisited to make sure they say the same thing. Some disgruntled villagers from Kawere and Kowo came here complaining that the mining companies are holding on to the MM Act as their defense whilst the Council is failing to act on their case. I could not really help because the RDC Act gives us power to administer mineral extraction but it is overridden by the MM Act.”*

In the above case, the local people were trying to prick the conscience of the Council but it could not do anything to help them. This shows that the lack of complimentary relationship among the legislative frameworks is militating against the fruition of development in the District. The pieces of legislation are fragmented to the extent of allowing the mining companies to disobey other laws governing mining.

#### **4.5.2 Lack of Decentralization**

Mutoko District Council has no control over the extraction of the natural stone because the government declared it as a mineral and transferred its control to the Ministry of Mines and Mining Development, which collects royalties through the MMCZ, the country's sole marketing agent for minerals. 89% of the respondents argued that the Council, the traditional leaders and even the councilors have no power over the granite mining operations. In conjunction with the above, respondent B from the Council also said,

*“all the powers have been given to the Ministry of Mines and Mineral Development and the ministry is the one which gives them licenses and permits hence they become very stubborn as they are directly linked to a higher office.”*

Therefore, this shows that there is a challenge in terms of administering mining activities and curbing the associated challenges. The lack of decentralization of power cripples the Council which is the steward of community development hence; sustainable development remains more of a wish than a reality.

#### **4.5.3 Lack of Value Addition**

There is no value addition or processing of the black granite at the quarry sites or at the growth point. 90% of the respondents argued that there is no value addition of the natural stone going on. Respondent C from the Council employees noted that,

*“there is no value addition going on in terms of black granite. Some efforts were made some years back with the BOZIMO company willing to polish the black granite but their efforts yielded a little due to lack of decentralization of power. All the profits were paid to the national offices and no development was realized and the company consequently closed.”*

This means that a lot of jobs that could have been created within the district through the processing of the rock are being ‘exported’ to Harare. Even in Harare, only about 30 percent of the black granite is processed into finished products, such as floor tiles, wall tiles, tabletops, and tombstones, among others. The rest is exported, only after being sliced into thin slabs for easier handling, mainly to Italy, Germany, and other European Union countries. This exposes the developing country syndrome of exporting low-value, high-bulk raw materials and if this does



not change, developing countries, like Zimbabwe, will always be developing. The challenge is that there is much dependence on finished products from the developed countries. Whatever foreign aid Africa gets should be geared towards enhancing this capacity to transform its huge endowment of raw materials into finished products ready for use anywhere in the world. Such a message should be sent to Africa's development partners.

The finite nature and the unavoidable future demand for the natural stone, are factors subject to consideration. It is noteworthy that the black granite, which has been quarried and exported, will never be replaced. Will the local people have something to name as the accrued benefits in future except for derelict land and broken down mountains? The futuristic demand for black granite must be factored in by assessing the current economic benefits of black granite quarrying in Mutoko District. Judged by the above criterion, the current economic benefits are just marginal and short term.

#### **4.5.4 Lack of rehabilitation**

A lot of waste is generated during the cutting of rock into right sizes and shapes. Boulders that do not meet the desired requirements and those of poor quality are often dumped at quarry sites. Other sites have been abandoned due to low grade black granite rock. Respondent B from the Traditional Leaders said,

*“the quarry companies are failing to contribute towards the initiation of corrective measures to make sure that the environment they used to operate in will be habitable and reforested. This has led to death of both livestock and children; we have had cases like that in Nyamukapa and Makochera areas. For example, one of the quarrying companies, BOZIMO, has since left the areas it used to work on without any rehabilitation.”*

Therefore, this shows that the nonexistence of rehabilitation and reclamation has caused more damages than expected. The unfilled pits generate a hazard to the lives of both the people and their livestock hence the situation is very harmful to the community at large. This does not interpret the principles of sustainable development which encourage environmental sensitivity and awareness.

#### **4.6 CHAPTER SUMMARY**

This chapter presents the research findings on the impact of black granite mining on sustainable development. The main goal of this chapter was the further exploration of the demands of research questions and research objectives. The chapter vividly gives an overview of the impact of black granite mining in association with the legislative frameworks governing the extraction of black granite in Mutoko which has proven to be the most important obstacle to the full operation through contradictory pieces of legislation. The challenges in the extraction of black granite mining also include lack of rehabilitation, pollution, lack of value addition, destruction of the ecosystem and aesthetic beauty, siltation, disturbances of cultural sites to mention a few.

## **CHAPTER FIVE : CONCLUSIONS AND RECOMMENDATIONS.**

### **5.1 INTRODUCTION**

The findings of the study are going to be summarized and analyzed in this chapter. It is going to offer an overall summation of the research findings and propound a comprehension of the factors which show both positive and negative impacts of black granite mining on sustainable development of Zimbabwe, particularly in Mutoko District. The chapter will eventually pass some recommendations as an effort to uphold positivity towards striking a dynamic balance between black granite mining and sustainable development of Mutoko District.

### **5.2 SUMMARY OF FINDINGS**

The research managed to show that the major economic activities in the rural communities of Mutoko are mining and agriculture. The people in the rural communities depend on these activities as their sources of livelihood and for satisfying their social and other needs. Despite the fact that they do mining and agriculture at small-scale, the activities have contributed to the development of their areas and also funding of other economic activities like sole trade.

The mining of black granite is associated with diverse impacts. The impacts range from economic, social and environmental dimensions. Generally, the mining of granite has affected the community in various ways, leading to challenges like siltation, pollution, destruction of the aesthetic beauty, loss of land, disturbance of cultural sites and heritage, diseases and school drop outs to mention but a few. This shows that a lot needs to be done as there is much happening as part of mining but all at the expense of the community.

The presence of incongruent legislative frameworks which cover the extraction of granite mining has militated against the development of a symbiotic relationship between black granite mining and sustainable development. There are many challenges associated with the conduct of black granite mining in Mutoko and these militate against the potential of the district to transform into a town.

In addition, incongruent pieces of legislations which govern the conduct of granite mining stand as an obstacle against the realization of sustainable development and economic growth of the communities. The laws do not tally with each other hence they allow gaps for the miners to disobey the principles of sustainable development and do as they wish at the expense of the local

environment and people. This is a loophole that is affecting the whole efforts by the government to promote sustainable development.

Furthermore, lack of decentralisation is also another visible challenge militating against a sustainable development of the District. The RDC Act (29.13) articulates that conservation of natural resources and allocation of land is the duty of the Mutoko RDC. Similarly Traditional Leaders' Act (29.01) also gives the same duty to the traditional leaders. This has resulted in fights between rural leaders and the miners as they only to report directly to the Ministry of Mines and Mineral development claiming to be taking it from the Mines and Minerals Act. Henceforth, given this scenario one can denote that there is need for the amendment of these three Acts of Parliament so that they suit each other and reduce fights between the local authorities and the miners.

More so, the realisation of sustainable development is also hindered by the lack of value addition of the natural stone. The produces that are being realised through the mining of black granite in Mutoko are mostly in their crude form as they enter the market, hence leaving a lot to be desired in terms of what the mining practices will offer towards community development.

### **5.3 CONCLUSIONS**

This section shall provide with the conclusions of the researcher's findings. Conclusions drawn from the findings unveils that the mining black granite is associated with diverse negative impacts. The impacts are multidimensional to include social, economic and environmental impacts. They facilitate more of life threatening conditions than the betterment of the social welfare of the affected people. This is a situation not cognizant with the principles sustainable development.

Secondly, it is noticeable that there is lack of correspondence among the legislative frameworks governing the conduct of granite mining. This situation is detrimental to the development of the District as the situation insulates the miners from impunity and allows them to mine without complying with the regulations which govern mining. There seems to be no effective watch dogs to give them some checks and balances. The council and other local leaderships are just rendered toothless bulldogs by the MM Act.

Thirdly, lack of decentralisation is not only a challenge very visible but a factor limiting mining development and fruition of other sectors as well. This situation has led to the Council's lack of control over the natural resources in the area hence the pace towards sustainable development is very slow. The situation where all activities are centralized to the national offices makes the Council a weak channel for development through the mining activities in the area.

More so, the lack of value addition militates against sustainable development. Value addition is lacking as the natural stone is being shipped to European states and America in its raw form. This will perpetuate a trail of destitution and underdevelopment in the District. Hence, value addition is needed in order to bring more development opportunities to the district.

#### **5.4 RECOMMENDATIONS**

As a way to ameliorate the situation of Mutoko in terms of achieving sustainable development, there is need for some processing industries to be established to ensure more beneficiation. The coming in of granite processing industries into the township area will likewise animate related businesses and administrations, and in that manner facilitating agglomeration economies of scale. Thus, Mutoko Growth point will be inevitably transformed into a town with more potential for continuous growth.

More oversight role and stewardship duties should be given to the local authorities in order to ensure sustainable development of the area in relation to the conduct of black granite extraction. The jurisdiction of Mutoko Rural District Council will allow it to claim eminences from and to offer mining claims to quarrying organizations. This endeavor will fortify and increase the revenues of the council which will empower it to achieve its sustainable development mandates and obligations in more effective way. Therefore, there is a dire need for the Mines and Minerals Act to be amended in a way which will cede power to the local authorities so that they can be able to solve their specific development challenges in their respective areas.

In order to avoid posing more danger to the society, the quarrying companies must embark on Environmental Impact Assessments as well as social environmental compliance audits as a matter of urgency and also come up with environmental management plans that include mine closure plans and post closure plans as required by the Environmental Management Act. The

environmental management plans should closely be monitored by EMA. This will help to ensure that they uphold the principles of sustainable development.

The council also needs to be knowledgeable of the production records of black granite mining from their original sources. Access should be granted to the local authority to examine the production patterns of the companies in order to make sure that what they are taxing them is the correct and requisite amount which is neither too high nor too low to protect both interests of the council and the companies. The current arrangement whereby the records are drawn from only what the companies provide, allows fabrication of information hence undermining the whole effort having the correct account of the real production levels.

Quarrying companies should, as a matter of urgency, sponsor HIV/AIDS sensitivity and consciousness crusades targeting their workers and the people living in the surrounding villages in order to stop the spread of the deadly disease. They should work together with governmental and non-governmental organizations with vast experience in HIV/AIDS awareness creation and prevention. They should offer average accommodation to their employees so that they will be able to live with their families as it will help to combat the spread of the disease more effectively, in addition to being an employment benefit to the workers.

Black granite mine employees in the district should come up with an effective union through which they will channel their grievances. They should then affiliate themselves to national level trade unions, such as the Zimbabwe Congress of Trade Unions, in order to have more clout and bargaining power. Such a union will help them solve problems, such as low wages, compensation for injury or death at work, and workplace health and safety, pensions, among other grievances. Currently they have weak and fragmented workers representative bodies.

## **5.5 CONCLUSION**

The research presented an intense understanding of the works of other scholars in chapter two where it covered some of the literature which was of the identical nature to the research study. This was to come up with an inordinate exploration of challenges being stumbled upon in trying to bring sustainable development in the District. The researcher compared the different situations so as to proffer appreciated recommendations which aim at improving the operations of granite mining. Chapter four has done a great justice in allowing the researcher to bring a light to the

nature and impact of the social, economic and environmental factors affecting sustainable development in relation to the mining of black granite. As a result, research questions and objectives have been covered and the research offered an operative analysis of factors militating against the fruition of sustainable development in relation to black granite mining. The major challenge in realizing sustainable development has proven to be the lack of congruency within the legislative frameworks covering granite mining. Hence, the current dispensation is not conducive for sustainable development of Mutoko District as she continues to economically punch below her weight. All the challenges revealed in the research are quite pertinent and need to be addressed timeously as they affect even the basic human rights of the communities affected as well as posing doom on the future generation to come.

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## **APENDIX 1: INTERVIEW GUIDE**

My name is Witness Chikuni (R144293W). I am a fourth year student at Midlands State University, doing a BSc. Honours degree in Politics and Public Management. I am carrying out a research on the topic entitled; **An assessment of the impact of black granite mining on sustainable development in Zimbabwe: the case of Mutoko District from 2002 to 2017.** Please, may assist by answering the questions in this interview. Your answers and identity will be treated with utmost confidentiality and integrity. Your cooperation will be greatly appreciated as it will augment my efforts toward fulfilling the requirements of the research process.

Name of the Organization.....

Position in organization.....

Date.....

Sex.....

### **INTERVIEW QUESTIONS**

1. What are the main economic activities done in Mutoko District?
2. When did mining of Black granite start in Mutoko? Can you give a brief background of how it started?
3. Are there any economic problems caused by the practice of black granite mining in Mutoko? If there are any, may you explain how they have manifested.
4. What are the environmental impacts of mining of black granite and how has the Local Authorities done to control and manage them?
5. What do you think are the main social challenges caused by mining of black granite in Mutoko?
6. Do you think the legislative frameworks governing the mining of black granite in Mutoko are well aggregated and are there any loopholes associated with them?
7. What is the vision of Mutoko District in terms of development through mining of the black granite?

**APPENDIX 2: Questionnaire For General Public And Mine Employees.**

My name is Witness Chikuni (R144293W). I am a fourth year student at Midlands State University, doing a BSc. Honours degree in Politics and Public Management. I am carrying out a research on the topic entitled; **An assessment of the impact of black granite mining on sustainable development in Zimbabwe: the case of Mutoko District from 2002 to 2017.** Please, may assist by answering the questions in this interview. Your answers and identity will be treated with utmost confidentiality and integrity. Your cooperation will be greatly appreciated as it will augment my efforts toward fulfilling the requirements of the research process.

May you please indicate your response by ticking in the box which corresponds with your preferred answer and where necessary fill in the dotted space provided for your responses.

1. What is your gender? Male[ ] Female [ ]
2. What is your occupation.....
3. What are the main economic activities in your area?.....  
.
4. What projects have been done to enhance impacts of stone quarrying as a measure to promote environmental sustainability?  
.....
5. What challenges do you face in affecting impact of stone quarry initiatives?.....
6. What policies are in place to enhance positive impacts of stone quarrying in the area?.....
7. What policy challenges exist towards stone quarry in the district?.....
8. Do you think there is observation of safety and health practices during the conduct of black granite mining Yes [ ] Average [ ] Not at all [ ].
9. Do you think granite mining has an effect on surrounding environment ? Yes[ ]No[ ]  
If yes how.....



10. What do you think should be done to ensure sustainable mining of black granite

.....

...

11. What do you think the government should do to improve mining of black granite in Mutoko and how? .....

.....