JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

An investigation into the effects of artisanal and small-scale mining in alleviating rural household poverty in Amazon village in Insiza district, Zimbabwe.

Nyoni Sotemba

Abstract

Artisanal small-scale mining (ASM) has contributed immensely to the socio-economic lives of individuals and communities in Insiza District. The research established that ASM has experienced an explosive growth in the district due to the increasing difficulty of earning a living from agriculture and other rural enterprises. Most of the youths in the district pursue artisanal mining as a full-time employment and as a shortest route out of poverty.

The main aim of the research study was to establish the effectiveness of artisanal and small-scale mining in alleviating rural household poverty in Amazon village in Insiza district, Zimbabwe. The research adopted the mixed approach to develop the understanding of how artisanal miners are fighting poverty in their families and in the community. Purposive sampling was used to select a sample of 40 artisanal miners and 10stakeholders such as the Environmental Management Agency, Local authority, District Administrator were interviewed during the research. A questionnaire, interviews and focus group discussions (FDG) were used to gather data from the respondents.

The research revealed that ASM is the major source of livelihood and income in the district since the area is affected by perennial droughts and lack of employment. The sector creates employment and wealth to the rural communities. Most artisanal miners in the district have acquired many assets especially agricultural, vehicles, livestock and some operate General Dealer Shops. Downstream enterprises such as vending, gold buying, flea markets and retail shops emerged because of artisanal mining in the area. Research shows how artisanal mining empowers the rural
Households in building more dynamic and resilient livelihood strategies portfolios by, for instance, 'dovetailing' artisanal mining and farming economies. Generally, the living standards of the people in Amazon area have improved as demonstrated by the number of meals eaten per day and the diversity of assets acquired from mining proceeds.

However, the document revealed that its negative effects have overshadowed all the benefits of ASM. The socio-economic, environmental, and health negative impacts of small-scale mining operations in Insiza district outweigh the benefits derived from the mining activities. The document established that all anti-social activities such as prostitution, alcohol abuse and

vague language is common in ASM sites. The sites have been recorded as hot spots of HIV, TB and other communicable diseases. The Insiza stakeholders argued that ASM is not a reliable and sustainable strategy of fighting poverty in rural places.

Bold measures need to be taken to ensure that artisanal small-scale mining is done in a way that is economically viable, socially acceptable and environmentally or ecologically sustainable. For ASM to meaningful contribute to household income and poverty eradication the government need to regularize and formalize all gold mining activities through licensing, giving permanent claims and operating permits to panners. Once ASM is well coordinated and formalized, communities and families can enjoy the benefits of artisanal mining.

The document also recommended that Fidelity Printers must participate in the 'Share Ownership Scheme" whereby they plough back to the community a monetary percentage of the mineral purchased in the district. The money will be used to purchase mining equipment, close pits dotted around the district and to finance environmental management awareness campaigns. Local councils for accountability purposes must administer the fund.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter introduces the study on the effectiveness of artisanal and small-scale mining in alleviating rural household poverty in Amazon village in Insiza district, Zimbabwe. The chapter outlines the background to the study, highlights the problem and outlines the research objectives. Related questions and key terms were heightened in this chapter. Delimitation and limitations of the study are also explained.

1.1 ackground

Emerging evidence from many developing countries indicates that artisanal and small-scale mining (ASM) is largely a poverty-driven activity which plays a significant economic role (Bloodworth, 2003). Estimations allude that approximately 13 million people in about 30 countries are directly engaged in ASM, a significant proportion of whom are women and children (ibid). A further 80 to 100 million people across the developing world are thought to depend on small-scale mining for purposes of livelihood and subsistence (ibid). Hentschell et al. (2003) contend that ASM can cause extreme environment damage and that it often has serious health and safety consequences for workers and surrounding communities. This is generally argued to be a result of poor mining practices and processing of target minerals. Thus, many governments regard ASM as an illegal activity and their consequent lack of a clear regulatory and policy framework about it has prevented formalization of this sector in many countries (Li, 2012). In turn, this has made improvements in the livelihoods of miners and their dependent communities difficult to achieve (ibid). Furthermore, it can be noted that the absence of its formalization also makes improvements in environmental performance much more problematic.

Hentschell et al. (2003) further allude that many of the potential economic benefits of the small-scale mining sector lost through poor mining practices, processing and marketing of its proceeds. On the other hand, the absence of a concise legal framework governing this type of mining as well as lack of secure rights for miners and communities exacerbate the economic losses (ibid). In the same token, artisanal and small-scale miners often find themselves marginalized and this marginalization triggers serious disputes between them and the communities in which they operate government agencies and large-scale mining interests (ibid). In some volatile situations, conflicts over access to and land-use becomes a particular issue especially where the local people have traditional land rights or land-use patterns (Li, 2012). In addition, social dilemmas such as child labor, infringed access to health care and education because of ASM present a major challenge to responsible governments and artisanal and small-scale mining regulatory authorities (in countries where they exist).

However, despite the challenges faced by ASM in the development nexus in many parts of the world, artisanal or small-scale mining activities are at least as important as large-scale mining activities, particularly in terms of the numbers of people employed therein (Chen, 2013). It is argued that ASM can play a crucial role in poverty alleviation and rural development; and that most of those involved in it are poor, but however, it presents the most promising, if not the only, income opportunity available for them (ibid). In line with the fact that the sector is perhaps better known for its high environmental costs and poor health and safety records, many continue to view it as dirty, unprofitable and fundamentally unsustainable (Leach et al. 2010). However, whether or not the sector is a net contributor to sustainable development and rural poverty alleviation, the fact remains that ASM activities will continue for at least as long as poverty makes them necessary (ibid). Therefore, this necessitates the imperative for rural communities to maximize the benefits that can be brought about and enabled by ASM and to mitigate the costs.

A survey conducted by the International Labour Organization (ILO) and MMSD alluded that around 13 million people are employed in small mines throughout the world and that the majority of them are in developing countries (Hentschell et al. 2003). In addition, the same survey showed that a large percentage of these miners are women and, regretfully, children (ibid). In line with these findings, the international development community has turned its attention to the ASM sector as a potentially viable livelihood enhancing economic activity (ibid). In resonance, Chen (2013) argues that international donor agencies have recognized the close relationship between ASM and poverty reduction over the last 10 years. Accordingly, the sector is gaining more attention and getting high priority on national agendas of many countries and of bilateral and multilateral donor organizations (ibid).

Zimbabwe's case in the ASM industry is located in a context where its history dates back to the Munhumutapa Empire in the 15th century, a time during which it involved the trading of gold between the Portuguese and the Shona people (Gutu, 2017). Today's artisanal small-scale miners in Zimbabwe are primary producers of gold, chrome, tantalite and semi-precious stones, with indications that over 70 percent of them are into gold production (Takavarasha, 2013). From the time of independence in 1980 to the year 2000, ASM activities were relatively obscure due to the country's fairly strong economy where the bulk of its labour was absorbed by industries and commercial entities (ibid). Between 2000 and 2008, the country experienced a severe economic recession that led to the closure of hundreds of large companies, with some being forced to reduce their operational capacity and to lay off some of their employees (ibid). It is therefore against this background that small and medium enterprises (SMEs) became a force to reckon with in Zimbabwe (Gutu, 2017). Currently, the SME sector accounts for 60% of the country's labour force and contributes 50% towards the gross domestic product (GDP) (ibid). The 2012

Finscope Survey on Micro, Small and Medium Enterprises (MSMEs) showed that about 5,7 million people were employed in this sector, representing about 40% of the country's population and that the ASM sector accounted for 8% of the total SMEs (ibid). Hence, this indicates that the ASM industry has become an important source of livelihood and a possible means of rural poverty alleviation in Zimbabwe.

Gutu (2017) reiterates that Zimbabwe's economic blueprint dubbed the 'Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET)' (2013-2018) identifies ASM activities as playing a key role in the growth of the economy, but that despite this recognition (by ZIMASSET), the Mines and Minerals Act and the Gold Trade Act do not recognise it. Thus, this non-recognition of ASM activities has led to the criminalisation of the sector's operations in the past decade (ibid). However, and on several occasions, verbal pronouncements have been made by the country's Ministers of Finance decriminalising the sector's operations but this has not been translated into law (ibid). In addition, it has to be noted that most Zimbabwean ASMs operate informally due to a number of factors, which include the cost of compliance, the ease of doing business, lack of mining knowledge and lack of capital to run a business (Takavarasha, 2013). In light of this background, and despite the legal challenges facing the sector, this study seeks to investigate the effectiveness of the ASM in rural household poverty alleviation in Zimbabwe, with special focus on Insiza District.

1.2 Statement of the problem

In the last two decades, Zimbabwe has been grappling with turbulent economic and political crises, which along the way cascaded down to formidable constraints on rural livelihoods and to shifting patterns of resource access and control (Rutherford, 2014). The economic turmoil experienced in the country left limited employment opportunities in the formal sector, forcing many formal employees to lose their jobs, resulting in high unemployment and poverty levels across the country (ibid). Resultantly, this led to reversal of rural-urban migration to urban-rural migration and to loss of remittances that used to flow from migrant labour in urban areas (Mabhena, 2012). Given that the Zimbabwean rural economy is predominantly agro-based, relying mostly on rain fed agriculture which is highly susceptible to the vagaries of climate change, the plight of rural livelihoods became worse off due to climate change which has been negatively impacting on the rural area's main livelihood portfolio (agriculture) (ibid). For Insiza District, the situation became worse off due to the fact that it is located in agro-ecological region V, an area naturally endowed with poor agricultural soils and low rainfall totals rendering extensive agricultural production impossible.

Thus, due to the deteriorating economic and political situation in Zimbabwe, informal artisanal and small-scale mining (ASM) became increasingly important as an income source in many rural areas in the country (Mabhena 2012). As a result, Zimbabwe became one of the numerous countries in Africa in which an increasing number of people turned to rudimentary gold extraction as a source of income in recent years (Mawowa, 2013). According to Hayes (2008), 26.4% of Zimbabwe's population depended directly on ASM in 2008, making Zimbabwe the country with the fourth highest rate of dependence on ASM in Africa. However, despite growing scholarship on Zimbabwe's economic and political crisis and livelihood struggles and potential coping strategies, limited attention has been given to the role of ASM as livelihood portfolio that is able to ameliorate rural poverty. Thus, given this research gap, and the growing dependence of many Zimbabweans on ASM as a livelihood

strategy, especially in rural areas, this study seeks to investigate the contributions of ASM towards rural poverty alleviation in Insiza District, a district currently characterised by a looming ASM sector.

1.3 Objectives of the study

The study will seek to pay attention to the following key objectives;

i. To assess how ASM addresses rural poverty.
ii. To examine the effectiveness of ASM in improving rural livelihoods.
iii. To explore the limitations of ASM in reducing rural poverty.

1.4 Research questions

The study will answer the following research questions;

i. In what ways and to what extent does ASM reduce household rural poverty?
ii. How effective is ASM in improving rural livelihoods?
iii. What are the limitations of ASM in reducing rural poverty?

1.5 Significance of the study

The study will make a contradistinction of the historical development landscape of the study area (before the onset of ASM) with the current development trajectory (in the face of ASM) and in so doing establish whether the study area experienced more growth before or after the emergence of ASM. The study area (Insiza District) is located in Natural Region V where rain fed agriculture was essentially the main source of livelihood. However due to the climate change impact, this is no long the case hence the study will generate knowledge on how ASM contributes to sustainability of rural livelihoods in the face of failing rain fed agricultural production and the economic and political crisis engulfing the country. In the same token, the study will be of importance in that it will clear the air on how artisanal small-scale miners are faring in an ambiguous legal system where on one hand it reiterates the contribution of the sector towards development and on the other speaks of its illegality. Furthermore, the study will generate knowledge on the multiplier effects of ASM (i.e., other economic opportunities that arose in Insiza District as a result of ASM) and most importantly, the negative social and environmental impacts of ASM (if any) and indicate how they can be reduced so that the gains of ASM can outweigh these social and environmental impacts.

1.6 Delimitation of the study

For the purposes of feasibility of this study, focus is going to be zeroed down to households with a member or members involved in artisanal and small-scale mining in Amazon Village (ward 16) in Insiza North District, located in Matabeleland South Province in Zimbabwe. The study will target any household member involved in ASM (i.e., adolescent boys and girls, and adult men and women) as research participants. The reason why adolescents are to participate in the study is because 'ASM is generally noted to be an economic activity that attracts both young and old' (Mawowa, 2013), hence the equal opportunity given to both young and old to take part in the study.

1.7 Theoretical framework

For over a decade, the study of rural development has employed the concept of livelihoods as a means to understand and respond to rural poverty (Scoones, 2009). Thus, and accordingly, this study is going to be benchmarked using the Sustainable Livelihoods Approach (SLA), which emphasizes rural people's embedded and holistic view of their lives and environment (Conway, 2011). As a theoretical framework, the SLA pays attention to context, livelihood resources, strategies, institutional processes and to different types of capital, including natural, financial, human, and social (Scoones, 1998). The approach aims to convey the dynamics of the lives of rural people in developing countries as well as the range of factors that have an impact on their livelihood strategies and outcomes (ibid). The approach's recognition of the diversity of rural experiences beyond farming is a useful tool for analyzing the complexity of rural livelihoods and the place of ASM within them. However, Lu and Lora-Wainwright (2014) argue that livelihood studies have not examined in detail the potential depth of ASM as a rural livelihood option, hence, this study seeks to address this gap.

As postulated by Fiszbein and Schady (2013), the SLA is a theoretical framework employed in development practice as a way of generating more understanding of the livelihood portfolios within the vulnerable community. It scrutinizes the main factors that affect poor people's livelihoods and the typical relationships between these factors. Fiszbein and Schady (2013) also posit that the theory can be used in planning new development interventions and in assessing the contribution existing development interventions have made to sustaining livelihoods of targeted group of people. Brasesco (2015) highlights two key functions of the SLA that are; helping in understanding the complexities of poverty; and enabling setting of principles to guide action/s to be taken in order to address and overcome poverty. In the same token, the SLA places people, particularly rural poor people, at the centre of a web of inter-related influences that affect how they create a livelihood for themselves and their households (Brasesco, 2015). The framework is vital in that it assesses factors that enable or hinder people's access to resources and livelihood assets that they can use to transform their lives for the better. These can include natural resources, technologies, skills, knowledge and capacity, access to health, access to education, sources of credit, or networks of social support (Brasesco, 2015). The approach then builds on the poor's existing capabilities to support them in addressing their constraints and taking advantage of opportunities that exist.

The other overarching reason why this theoretical framework is chosen to inform the analytical base of this study is its ability to build on people's perceived strengths and opportunities rather than focusing on their problems and needs alone, and support for existing livelihood strategies of the poor (Fiszbein and Schady (2013). In the same vein, the framework adopted in this study for its thrust proffer for examination of impacts of policies and institutions on livelihood options available to the poor and its ability to highlight the need for policies to be informed by insights from the local level and by the priorities of the poor (ibid). Over and above, the SLA is going to be vital in this study due to its framework that has longevity and sustainability in perspective as far as addressing (rural) poverty is concerned.

1.8 Ethical Considerations

As is befitting in social science research, this study will pay particular attention to recommended research ethics in order for it not only to be acceptable but in order for it to also minimize or eliminate, where possible, social, emotional and physical harm on research participants. Beauchamp and Bowie (2015) reiterate that acceptable studies ought to be highly given to seeking informed consent from research participants, respecting privacy of respondents and maintaining their confidentiality among other research ethics. To that end, the researcher solicits for informed consent from all research participants and make it clear that their participation in the study will be based on voluntary basis and that never at any time during the study will it be compulsory. As Beauchamp and Bowie (2015) further postulate that guardians or parents can seed consent on behalf of under-age or disabled prospective participants, the researcher will thus implore parents and guardians for consent on behalf of those under age of majority (i.e., adolescents).

As also informed by Beauchamp and Bowie (2015), the researcher will verbally make it clear to interested research participants that they will enjoy their right to privacy during the study and that any information that they will give will be in confident. Thus, use of pseudo names instead of real ones will be upheld to that effect. Furthermore, the researcher will verbally make it clear to research participants that confidentiality and freedom of expression will be guaranteed during the course of their participation in the study as highlighted by Yin (2014).

1.9.0 Research Methodology

1.9.1 Research Design

The case study research design is deemed suitable for this study as the researcher seeks to conduct a real-life context investigation of the effectiveness of ASM in alleviating household rural poverty in Insiza District in Zimbabwe. The case study research design is going to be the underlying ethos on which the framework of this study is going to be based, majoring on the trait research designs that makes them most efficient in contextual studies where a phenomenon is studied, then analyzed from the perspectives of those involved and or affected by it (Yin, 2014). Similarly, the case study research design is going to be adopted because unlike other research designs, it is the only research design that enables a researcher to conduct multi-perspectival analyses of generated data (ibid). What this entails is that case study research designs allow researchers not only to gather views and perspectives of primary research participants, but also those of secondary participants, who in this case will be EMA, AGRITEX, Veterinary and NGO Officers in the study area.

1.9.2 Research Approach

This study is going to adopt a mixed research approach as it seeks to explore and understand verbal and textual meanings research participants ascribe to the propensity of ASM to alleviate rural household poverty in Amazon Village in Insiza North District. The reason for the adoption of this research approach is that it is ideal in letting research participants give an account of their experiences with ASM in as far as rural household poverty reduction is concerned. The other reason why a mixed

research approach seems to be the most ideal in this study is that it enables a researcher to participate in the study, data collection, its interpretation and analysis (Burns and Groove, 2003).

1.9.3 Target Population and Sampling Procedure

According to Polit et al. (2001), a researcher needs to identify the research population which characterizes elements within which their research problem as well as the answers to their research question/s or problem lies. This serves to point out that a research population contains elements that can furnish a study. Therefore Polit et al. (2001) postulate that a population is the totality of all subjects that conform to a set of specifications that comprise of the entire group of persons or elements that are of interest to a researcher and to whom the research results or findings can be generalized. The research population in this study therefore will comprise of all households in Amazon Village in Insiza District with at least one household member engaged in ASM.

Having pointed out the targeted population of the study, however, not every element of the study population will be included in the study because of resource and time constraints. Hence, for the purposes of feasibility of the study, purposive as well as snowball sampling techniques will be used to draw the required sample of the study. Purposive sampling is ideal for studies like the current one in that it enables a researcher to look for and find specific predefined groups from a wider population for inclusion in a study (Yin, 2009). The kind of sampling is ideal in this case; because not all households have a member engaged in ASM, thus, targeting those households with artisanal and small-scale miners will suffice the sampling criteria. Precisely, snowball sampling is the type of purposive sampling to be used to obtain the required sample for the study. Firstly, one individual engaged in ASM will be identified for inclusion in the study and this individual will assist to identify other individuals engaged in ASM for inclusion in the study. This means that one adolescent and one adult artisanal and small-scale miners will be identified; they will then identify their colleagues from Amazon Village engaged in ASM. Therefore, 20 adolescents and 20 adults will be sampled to take part in the study and one from each household giving 40 different households to be included for one on one in depth interviews. A further eight adults will be sampled to take part in two focus group discussions which will consist of four adolescents and four adults each. In addition, one personnel from AGRITEX, Veterinary Services Department and project officer from the DSO operating in Amazon Village will be sampled for inclusion in the study as key informants. This means that the total number of research participants to take part in the study is 51.

1.10 Chapter Summary

This research proposal introduced the research question at hand as well as issues that gave impetus for the pursuit of this study. The study is framed in a context where Zimbabwe has been going through severe economic and political recession since the year 2000, leading to closure of hundreds of large companies, with many being forced to lay off some of their employees and reduce their operational capacities. It is therefore against this background that small and medium enterprises (SMEs) such as ASM are somehow becoming a force to reckon with in Zimbabwe. As highlighted in the background of the study, the ASM industry has become an important, but little researched, source of livelihood and a possible means of rural poverty alleviation in Zimbabwe. It is for this reason that this proposal builds a case for the investigation of the effectiveness of ASM in rural household poverty alleviation in the Zimbabwean context, with special focus being made on Amazon Village in Insiza District.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The available literature on the overview of ASM that is the reasons, types of ASM and how they conceptualize poverty is presented in this chapter. The chapter then reviewed the past authors works regarding the relationship between ASM and poverty as well as the factors that have promoted or inhibited ASM to alleviate poverty. The chapter presented the gaps in knowledge as identified in the course of the literature review.

2.1 An Overview of Artisanal and Small-Scale Mining (ASM)

In terms of approaches, a number of studies have taken a more holistic approach of Artisanal and Small-Scale Mining (ASM), this includes the sustainable livelihoods approach (Gilman, 1999). Others have concentrated on a specific aspect of the industry, for example the environmental consequences of ASM activities (Hinton et.al. 2003), regulatory frameworks (Barry, 1996) and technical issues (Bugnosen, 1995) with its impact to poverty alleviation being in cooperated as a sub-sector in most of the studies.

According to Hentschel, et.al. (2003), the approaches of dealing with ASM have evolved over time with definitional issues being in the year 1970's and technical issues in 1980's. In the 1990's most of the approaches towards the integration of technical, environmental, legal, social and economic issues were handled. The special attention of legislation of ASM sectors as well as the relation between large mining companies and ASM was from middle to late 1990's. The community related issues and sustainable livelihoods issues started in the year 2000 and was expected to advance to other detailed levels as years go by.

While different definition exist, ASM is often defined by the use of rudimentary extraction practices with gold as the most commonly extracted mineral in this sector (Hinton, 2006). A report published by the International Labor Organization in 1999 captured the complexity of this sector, stating, "ASM means different things to different people. To some it is a dirty, dangerous, disruptive and should be discouraged. To others it's profitable, productive or simply the only way out of poverty", making its acceptance to vary from community to community.

ASM have been an important economic activity since the pre-colonial period (Holloway, 1997). In Africa, the mining of gold and other minerals were cornerstone economic activities in most ancient civilizations (D'Souza, 2002). Most Latin American and Sub-Saharan African countries' historical trajectories are closely associated with ASM development and exploitation (Klein, 1992). A good example is Ghana, which her colonial name of the 'Gold Coast' aptly referred to the presence of gold, which contributed greatly to her development (Jackson, 1992). Mining activities have taken place in Kenya for many years up to the present time but most of the medium to large-scale mining of gold and base metals took place during pre-independence days. The largest gold in the country was located at Rosterman near Kakamega town in Western region, where it was operated in the 1930's up until its closure in 1952. A medium scale copper mine was also operated at Malcalder in

Migori areas of Nyanza region from 1956 until it closed in the late 1960's. Lead ore mines were operated in the Kinagoni and Vitengeni areas of Coast region until the 1970's (GoK, 2010). In later year, however mining in Kenya has been dominated by the production of a variety of industrial minerals, among which are Soda ash, fluorspar, diatomite, and limestone. Gold and gemstone production became the main activity of Small-Scale miners who have operated continuously in different parts of the country (GoK, 2010). In Kenya, Artisanal and Small-Scale Gold Mining is associated with rural areas especially the western part which is said to have potential for gold.

2.2 Socioeconomic impacts of artisanal mining

Artisanal mining is an attractive employment option for many in rural areas; the barriers to entry are minimal – low technology and little capital is required. Activity levels are dynamic as precious minerals are often inversely correlated with economic opportunity and periods of economic crisis. Artisanal and small-scale mining generates income mainly from the minerals that provide higher income than other traditional activities within rural mining communities in the Matabeleland South region of Zimbabwe. Kitula (2006) states that the presence of mining activities in Insiza district in Zimbabwe has created market opportunities for local farmers and small traders, and employment opportunities for others. Artisanal gold mining is associated with many social problems. Kitula (2006) indicates that local populations are marginalized and oppressed, especially those from lower economic classes. The participation of women in artisanal gold mining varies depending on local beliefs from different countries and communities. Their role is not limited to mining activities and includes the supply of food, tools, equipment, and sexual services that exposes them to sexually transmitted diseases and HIV/AIDS (Hentschel et al. 2002). Children start washing gold as young as 3; from 6 they begin breaking hard rocks with hammers and from the ages of 9 to 12 they go underground and do the same work as the older men (Hentschel et al. 2002).

The environmental impacts of small-scale mining have been studied worldwide; the main impacts are deforestation and land degradation. In addition, this leads to open pits that are animal traps and health hazards. Stagnant water in excavated holes that are abandoned by the miners provides breeding ground for mosquitoes; spillage of mercury used in gold amalgamation lead to health hazards, inefficient extraction, dust and noise; all contribute to unstable underground and long-term hazards (Labonne and Gilman 1999; Hentschel 2000, 2002; UNESCO 2003 in Tieguhong et al. (2009); USAID 2000). One of the most significant environmental impacts is derived from the use of mercury (Hg). It is a pollutant causing growing concern because of its long-term impacts on ecosystems and human health. Artisanal and small-scale mining, in contrast to other sectors where mercury utilization is decreasing, remains a dangerous source of mercury pollution (UNIDO 2009). Article 16 of the 1994 Law on Forestry states that an environmental impact assessment study must be conducted before any project is carried out within any forest domain on national territory. Local populations report that they are unaware of this law and little is being done in terms of its implementation by the concerned authorities (Tieguhong et al. 2009). However, small-scale mines are testimonies for the existence of mineral resources, with alluvial production often close to primary sources, for industrial discoveries are a way of discovering industrial mining deposits. Small-scale mining operations are often appropriate activities for marginal deposits, in places where industrial exploitation might not be economically feasible.

2.3 Reasons and types of Artisanal and Small-Scale Mining (ASM)

There are various reasons why people engage in ASM and this is what has led to the different classification or types of ASM. ASM represents a full- time activity providing the principle means of subsistence, while for others it is a part –time or seasonal activity and supplements other activities. Some communities have engaged in ASM for generations while others are now engaging in it following the findings of new reserves or a dramatic increase in demand for a particular commodity. An increase in ASM activity can be associated with periods of economic recession reflecting a lack of formal employment opportunities in the mining sector or an absence of alternative economic activities (Hentschel.et.al. 2003). There is Permanent ASM that refers to mining as a full time, year-round activity. Mining is regarded as the primary economic activity for the community with the monetary gains leading to the acquisition of livestock, vehicles and other valuable assets. The miners are also farmers, and they employ herd boys and housekeepers hence empowering other people‘s livelihoods. In different developing countries throughout the world, ASM more commonly serves as a seasonal or part-time activity alongside other activities, most commonly agriculture. In such cases, ASM provides a means of generating additional income for the household or satisfying a particular need. In Mali, it is estimated that up to 300,000 people are engaged in gold mining and although it has become the main income generating activity, it remains a seasonal occupation (Labonne, 2003). In any one country, different communities may engage in ASM activities on different scales and at different times of year. In Papua New Guinea, for example, communities may engage in ASM activities as a seasonal activity or as a part-time year-round activity to satisfy specific needs. Generally, people in Papua New Guinea use mining as a source of cash, they only mine gold when they need money for school fees, medical expenses, social obligations or travel. This means that people engage in full-time mining activity at the beginning of the year when school fees are due and again around Easter and Christmas time. A sizable proportion of the population mines on a part-time basis all year round to supplement other activities and another section engage in agricultural activities such as growing coffee and do not mine during coffee harvesting (Susapu and Crispin, 2002). In countries such as Bolivia, Colombia, Indonesia, Mali, the Philippines and Zimbabwe miners often come from communities that have a long tradition of small-scale mining and have strong cultural ties to the areas in which they mine. In tribal mining communities, for example, these ties can extend back for many generations. Other communities are engaged in mining for socio-cultural reasons. Many of Zimbabwe’s gold miners, for example, continue to mine concessions awarded to large-scale mining companies contending that they have cultural ties to the land their ancestors mined for centuries (Hilson, 2003). Shock-push ASM refers to when ASM is a poverty driven activity emerging after recent loss of employment in other sectors, conflicts or natural disasters. For example, in a situation of economic collapse of a state or sudden displacement due to civil war, people may turn to ASM because it gives them immediate cash with very low barriers to entry. ASM offers the income in an otherwise desperate situation with few if any realistic alternatives e.g., Zimbabwe (Weber-Fahr et.al 2002).

2.4 Conceptualizing poverty

Poverty is a complex human phenomenon associated with unacceptably low standard of living. It has multiple dimensions, manifestations and causes (World Bank, 2000). United Nations defines poverty as a denial of choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society. It means not having enough to feed and clothe a family, not having a school or clinic to go to; not having the land on which to grow one’s food or a job to earn a living, and not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households and

communities. It means susceptibility to violence, and it often implies living on marginal or fragile environments, without access to clean water or sanitation (World Bank, 2000).

In a broad perspective, poverty is said to be the absence of resources. Poverty can be explained as being relative or absolute. Relative poverty is sometimes referred to as overall poverty which is determined with comparative socio- economic parameters defined by a given community or society. Relative poverty takes various forms, including lack of income and productive resources to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments and social discrimination and exclusion. It is also characterized by lack of participation in decision-making in civil, social and cultural life. On the other hand, absolute poverty is said to be a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services (Mulwa, 2010). With the differences on how poverty is conceptualized, there was need to know how the people of Amazon Location have conceptualized poverty.

2.5 Relationship between ASM and Poverty Alleviation

The link between ASM and poverty alleviation is profound and complex. Those who constitute the majority of the ASM community at the level of resource extraction, basic processing and local trading inefficiently and it are not sustainable (Woolard and Leibbrandt, 1999). Field et.al. (2006) argues that those involved in ASM activities are often driven into it by poverty and the income they receive from ASM can improve their daily subsistence and reduce the impoverished status in the immediate term. However, the nature of the activity is such that it is exploitative. It draws people away from other more sustainable activities such as agriculture. It does not produce long-term wealth for these individuals. It creates debt. It requires more resources and this often leaves the ASM with no other choice and sometimes they are uplifted from extreme poverty to poverty but that also varies from one group of people to another.

Woolard and Leibbrandt (1999) argued that many ASM workers are engaged in the trade because they have no jobs and no alternative options. In places where the previous, formal economy has collapsed due to war, political instability and corruption, ASM can rise as a survival strategy for those who live on and around mineral-rich land. It can be used as a general guideline that miners typically receive around a relatively small percentage of the local sale value of their product. Hentschel et. al. (2003) concluded that despite exploitation of the workers in the mines, a certain level ASM generates a high level of social access to the economic value of their product by generating a significant cash flow through the community.

An interesting argument is that, as with all forms of mining, ASM is a finite activity exploiting a non-renewable resource. The mineral deposits get overexploited and exhausted. As such, the livelihood potential associated with any ASM site is limited to the life of the resource, which is a function of the accessibility, samples and quality of the ore, the market, the efficiency of production techniques, the number of miners and the intensity of their labor (Woolard and Leibbrandt (1999). ASM can only begin to contribute to national poverty reduction if the technical elements of efficient mining are managed in order to deliver

economic development (Krappmann, 2006). ASM can attract workers away from more sustainable livelihoods, such as farming, and can destroy the future potential of such areas if there is a resource found on agricultural land (Gavin et.al. 2006).

Extreme poverty is rampant in ASM communities. According to the Common Fund for Commodities (CFC) report of 2008 the relationship between ASM and poverty alleviation is usually linked to the Millennium Development Goals (MDGs) this is because the MDGs are seen to be relevant to ASM (CASM, 2010). In the eradication of extreme poverty and hunger (MDG 1) its relevance to ASM shows that 8,775 million people in Africa depend on ASM for their livelihood. ASM is poverty driver; it can reduce or can perpetuate poverty. Unregulated ASM undermines agriculture and food security (CASM 2010).

In achieving universal primary education (MDG 2), 676,000 children work in ASM in Africa. For many this is a result or cause of exclusion from school. In promoting gender equality and empowering women (MDG 3), 4 million women work in ASM in Africa. Women suffer inequality and abuse in ASM and need urgent support to strengthen or transform their roles (CASM, 2010).

In reducing child mortality and improving maternal health (MDG 4 and 5), ASM communities rarely have access to health, care, decent hygiene or sanitation, clean water, or good nutrition. Women and children are highly vulnerable in ASM communities. In combating HIV and AIDS, malaria and other diseases (MDG 6), ASM is a high- risk activity for HIV/AIDS, ASM camps are high risk for diseases such as malaria, and water borne diseases (CASM, 2010).

In ensuring environmental sustainability (MDG 7), ASM causes water contamination, mercury poisoning, erosion, degradation of landscapes an agricultural land, deforestation. In Development of a global partnership for development (8), a range of ASM partnerships already exist and can be incorporated into global alliances to bring ASM into a stronger position for interventions (CASM, 2010).

The second to the eighth MDG all relate to the first MDG and achieving the MDG number one means then alleviating poverty through ASM can be achieved but a question that many developers ask is whether the 190 countries Kenya included, will manage to do so by 2030. However of note is that ASM- related poverty is not reducing; the number of projects that are targeted at assisting school going children and enticing them to leave the mines and continue with education are not attractive to them because most of their peers or role models have become the ASM due to their spending sprees. There are few HIV/AIDS programs for ASM areas; ASM areas can suffer from increased malaria prevalence due to stagnant water and lack of access to prevention programs; water quality in ASM areas are poor and progressively deteriorating (CASM, 2010) was this the case in Amazon Location?

2.6 Factors that Promote or Inhibit ASM from Alleviating Poverty

Access to finance is essential to enable the formalization, improved production, strengthening of the ASM and its potential transformation into a larger scale which can be medium scale mining (Dreschler, 2001). Gavin and Hilson (2006) said ASM miners typically present a suite of factors that make them unattractive to lenders. First, they tend to be already in debt. Second,

they are frequently migrating and ensuring potential repayment of credit is difficult. Third, they usually lack collateral. Fourth, they rarely have the capacity or expertise to be able to present a viable business plan with a detailed breakdown of expenditures, hence most of the credit facilities are diverted thus making them potential bad debtors. Fifth, Senauer (2002) also said ASM record keeping is not up to standard and the statistics are not well documented, therefore does not allow for accurate risk analysis by creditors. Finally, however here is a dearth of lending institutions that provide Credit or support to the ASM. Given these constraints, artisanal miners usually resort to the most accessible local source of funds, namely pre-financing by traders, which further compounds the problems of debt as these loans may demand high rates of interest and sale of the product to the trader at a sub-optional price for the miner.

According to Nyambe and Amunkete (2009), the tools used by ASM miners are rudimentary, manual and simply portable and are not sufficient to carry out mining activities. This makes the miners not perform to their maximum capabilities. This lack of equipment is worsened by the fact that miners do not have starting capital in order to acquire the tools they require. More, so miners have no access to credit from formal financial institutions for them to finance their operational requirements.

The sexual division of labor within the ASM sector varies from region to region. In many countries, women carry out what are perceived to be 'lighter' tasks, such as crushing, sorting and carrying ore (Wall, 2000). Women are less than 10 per cent of those involved in ASM in some parts of Asia; whilst in many African countries vary between 50 and 100 per cent depending on the location and type of mining (ILO, 1999). In Burkina Faso, women (Gueye, 2001) conduct approximately 90% of mineral processing activities: here, between 45,000 and 85,000 women work in gold mining alone and as many as 45% of all artisanal miners are women. Over 50% of Mali's ASM workforce is comprised of women, who carry out an estimated 90% of mineral processing activities (Hinton et al., 2003). In Mongolia, women make up 40 per cent of ASM miners (Murray, 2003), and in Lao PDR, an estimated 80% of panniers are women (Hinton et al., 2003). The lack of precise gender data notwithstanding, what is certain is that women play a much bigger role in ASM than in large-scale mining. Lack of attention to gender issues and limited social analysis mean that women are often treated as a homogenous group, whereas there may be enormous social differentiation amongst women associated with mining in a given context. For example, some may be financing mining activities as entrepreneurs while others may be living in chronic poverty and driven to hard manual labor reprocessing tailings or ore crushing. (Hentschel et.al, 2003)

In some contexts, and types of mining women are limited to engaging in lower status and lower-paid activities. This stems from a combination of cultural perceptions of appropriate work for men and women and issues regarding women's access to assets (financial, knowledge, time, labor) to engage in mining. In some cases, cultural norms are ednforced through legislation, such as regulation that makes it illegal for women to work underground (Drechsler, 2001). Less direct legislation can also restrict women's participation and control over mining activities (e.g., the denial of legal title to land, or the lack of access to credit). Some countries have acted on these issues by changing their legislation to provide women with the same rights to working underground as men (Ranchod, 2001), whilst others have attempted to enact gender neutral legislation. The efficacy of these approaches remains to be seen, given the deeply rooted nature of male dominance in many societies.

Child labor is a huge issue within ASM; the understanding is that it is caused by poverty and at the same time, it contributes to poverty (Dreschler, 2001). In some areas, children may constitute a significant component of the ASM workforce. The UN Convention on the Worst Forms of Child Labor universally condemns this yet, in many countries, even if there is national legislation to ban children from mines, enforcement may be severely lacking (Jennings, 1999). The UN convention on the Worst Forms of Child Labor (ILO, 1999), identifies mining as "work which by its nature or the circumstances in which it is carried out is likely to harm the health, safety and morals of children".

Children face many risks in mines including physical trauma, injuries, hernias, backache, eye damage, damage to growing bones and organs, mercury poisoning, long and skin disorders, water-borne disease, malnutrition exposure and addiction to alcohol and drugs (Jennings, 1999). Nyambe and Amunkete (2009) added that prostitution, trafficking, STDs, HIV/AIDS are risk to children who are exposed to the mines. Whilst some children undertake mining activities after attending school or at weekends, others are involved in ASM full-time. Chachage, (1995) found that in gold mining communities in Geita, Tanzania, it could be both a family livelihood strategy, mining being considered part of a particular lifestyle and a good opportunity for young people. Sometimes it could also be taking place where there is extreme impoverishment caused by family breakdown, with for example divorcees or elderly relatives being dependent upon children.

In Mongolia, the situation is slightly different due to the high level of importance given to educational attainment. Murray (2003) argues that whilst children's participation in small-scale mining is widespread (about 40 per cent of the total); the majority is involved in mining work strictly during their school holidays. It is suggested that absenteeism and school dropouts are a problem limited to the poorest of the child miners (Murray, 2003).

The institutions, policies and processes which influence livelihoods in the ASM sector varies significantly both from country to country and within different regional contexts. At the national level, ASM has rarely been a key government policy priority, even where Large-Scale Mining (LSM) is identified as an important contributor to GDP (Gueye, 2001). ASM activities are apparently universally coordinated and managed by the Ministry of Mines or a related institution, which in most cases are in charge of regulation and management of the LSM sector. The extent to which the dominant/lead ministry interprets its role with regard to ASM (i.e., to promote and control) is a product of a range of factors (Murray, 2003).

2.7 Theoretical Framework

The Theories of Poverty and the Resource-Case Theory guided this study.

2.7.1 Theories of Poverty

The theories of poverty explain the various causes of poverty. These are the individual theories of poverty; the cultural theory of poverty; the structural theory of poverty and the cumulative and cyclical interdependencies theory of poverty.

Variations of the individual theory of poverty ascribe poverty to lack of genetic qualities such as intelligence that are not so easily reversed. The belief that poverty stems from individual deficiencies is old. Religious doctrine that equated wealth with the favor of God was central to the Protestant reformation (Weber 2001) and blind, crippled, or deformed people were believed

to have been punished by God for either their own or their parents' sins. The individualistic theory explains poverty as a result of the attributes that are inherent in the individuals, which includes the character of the person as well as his or her personal abilities in life such as intelligence. That is to say, people are poor in life because of their inabilities to compete with others for resources. Because of this, they end up being caught up in poverty and its associated effects (Hurrnstein and Murray, 1994).

The second theory of poverty roots its cause in the "Culture of Poverty". This theory suggests that poverty is created by the transmission over generations of a set of beliefs, values, and skills that are socially generated but individually held. Individuals are not necessarily to blame because they are victims of their dysfunctional subculture or culture. Technically, the culture of poverty is a subculture of poor people in ghettos, poor regions, or social contexts where they develop a shared set of beliefs, values and norms for behavior that are separate from but embedded in the culture of the main society (Ryan, 1957).

The structural theory sees poverty as resulting from capitalism. Most literature on poverty now suggests that the economic system is structured in such a way that poor people always lag behind regardless of how competent they may be. Partly the problem is the fact that minimum wages do not allow single mothers or their families to be economically self-sufficient (Jencks, 1996). The problem of the working poor is increasingly viewed as a wage problem linked to structural barriers preventing poor families from getting better jobs, complicated by limited numbers of available employment opportunities within the working class and lack of growth in sectors supporting lower skilled jobs (Tobin, 1994).

The cumulative and cyclical interdependencies of poverty theory looks at individual situations and community resources as mutually dependent, with a faltering economy, for example, creating individuals who lack resources to participate in the economy, which makes economic survival even harder for the community since people pay fewer taxes. This theory has its origins in economics in the work of Myrdal (1957) who developed a theory of "interlocking, circular, interdependence within a process of cumulative causation" that helps explain economic underdevelopment and development. Myrdal notes that personal and community wellbeing are closely linked in a cascade of negative consequences, and that closure of a factory or other crisis can lead to a cascade of personal and community problems including migration of people from a community. Thus, the interdependence of factors creating poverty actually accelerates once a cycle of decline is started. Lack of employment leads to reduced consumption and spending due to inadequate incomes and savings. This therefore means that individuals cannot invest in training, and they lack the ability to invest in businesses or to start their own businesses, which leads to lack of expansion, erosion of markets, and disinvestment, all of which contribute back to more inadequate community opportunities.

Health problems and the inability to afford preventive medicine, a good diet, and a healthy living environment become reasons the poor fall further behind. The cycle of poverty also means that people who lack ample income fail to invest in their children's education, the children do not acquire enough knowledge as well in poor quality schools and they do not get equal employment opportunities. They also are vulnerable to illness and poor medical care. In the study the causes of poverty are what may make one to be in ASM or it may be the driving force to ensure that poverty is alleviated among the ASM community members. These theories of poverty explain the causes of poverty and by knowing the causes; it may be the first step to develop strategies on how to alleviate poverty using ASM as a livelihood.

2.7.2 Resource –Case Theory

This study is guided by the Resource-case theory. The well-known 'resource case' hypothesis is regularly used to depict the mining sector in Africa. Many researchers have all researched and catalogued the clearly identifiable links between mineral exploitation and a variety of social and security issues ranging from wars, poverty and abuse of women (Woolards and Leibbrandt, 1999).

The idea that natural resources might be more of an economic curse than a blessing began to emerge in the 1980s. In this light, the term resource curse thesis was first used by Richard Auty in 1993 to describe how countries rich in natural resources were unable to use that wealth to boost their economies and how, counter-intuitively, these countries had lower economic growth than countries without an abundance of natural resources (Auty, 1999).

The ambitions of the people and those of the government sometimes are always in conflict, due to the large number of resources and money a country's government amass for their own luxuries rather than for the people. Thus, natural resources serve as a curse for the people, who then have a lower relative standard of living. Natural resources can, and often do, provoke conflicts within societies (Collier 2007), as different groups and factions fight for their share. Sometimes these emerge openly as separatist conflicts in regions where the resources are produced but often the conflicts occur in more hidden forms, such as fights between different government ministries or departments for access to budgetary allocations. This tends to erode governments' abilities to function effectively.

In resource-rich countries, it is often easier to maintain authority through allocating resources to favored constituencies than through growth-oriented economic policies and a level, well-regulated playing field. Huge flows of money from natural resources fuel this political corruption. The government has less need to build up the institutional infrastructure to regulate and tax a productive economy outside the resource sector, so the economy may remain undeveloped. The presences of offshore tax havens provide widespread opportunities for corrupt politicians to hide their wealth.

This study therefore attempted to show that despite Artisanal and Small-Scale Gold Mining trying to alleviate poverty there are factors that when not looked into can make the gold resource to become a curse to the people in ASM sector for it can be the source of conflict, corruption and lack of infrastructural development hence a decrease in poverty alleviation.

2.8 Chapter Summary

This chapter was a review of related literature detailing the relationship between ASM and rural poverty alleviation in Zimbabwe. It noted that the urgent demand for appropriate mitigation of the activities of Artisanal and Small-Scale Mining (ASM) in Africa has become necessary in view of the immense contribution of the mining activities to poverty alleviation in the continent. The research discussed some factors that attract people into the mining sector. Literature review established that ASM workers are engaged in the trade because they have no jobs and no alternative options for a better livelihood especially in Africa. Factors that promote or inhibit ASMs from poverty alleviation were highlighted in the discussion. This study had two theories governing it and this were the resource – case theory and the theories of poverty.

CHAPTER THREE

METHODOLOGY

3.0. Introduction

This section provides an overview of the geography of the Filabusi Catchment area and the research methods and analysis used to meet the objectives of the research. It discussed the research instruments, data collection procedures and analysis procedures that were to be used in the study. The section on data collection focused on methods and instruments employed in collection of data. The last section on data analysis describes how data had been captured, analyzed and presented

3.1.0Research philosophy and approach

3.1.1 Research Approach

The research adopted the deductive approach which is defined as the as an approach where observation and data collection begins from theory in order to test the theory (Saunders, Thornhill and Lewis, 2016: 144). The main features of the deductive approach are the use of structured methodology, principle of operationalization, principle of reduction and generalization principles (Saunders, Thornhill and Lewis, 2016:147). The researcher used structured methodology to determine the relationship between artisanal mining and poverty alleviation. All variables were simplified to their simplest terms as suggested by the principle of reduction (Saunders, Thornhill and Lewis, 2016:147). The study used a reasonably large sample so as to generalize findings to other similar environments. Only artisanal miners in ward 16 and key stakeholders were selected as the sample of the study. This was done to bring out the true reflection of what is happening in the ward and how artisanal mining activities have influenced changes in the villagers' livelihood.

3.1.2Research Design

The research gathered information through a mixed method approach. The approach allowed the use of both quantitative and qualitative data in gathering research data. Mixed methods research is guided by philosophical assumptions that enable the mixing of quantitative and qualitative approaches throughout the research process (Hanson, et al., 2005).

According to Greene, et al. (1989) and Bryman (2006), the benefits of mixed method approach include, among others:

- Allows for greater validity in a study by seeking corroboration between quantitative and qualitative data.
- Provides a complete and more comprehensive picture of the study phenomenon since it uses a combination of approaches.
- Mixed methods approach can allow for the limitations of each approach to be neutralized while strengths are built upon thereby providing stronger and more accurate references.

The mixed method approach has its own weaknesses as highlighted by different schools of thought. Johnson and Onwuegbuzie (2004) suggest that it may be difficult for one researcher to carry out a mixed methods study if the qualitative and quantitative phases are to be undertaken concurrently. Ivankova, et al. (2006) argued that for a mixed

method approach to be successfully, that the researcher has at least a sufficient knowledge of both quantitative and qualitative methods independently and how to mix these methods appropriately to achieve good study outcomes.

Without ignoring the weaknesses of the research approach, a mixed method approach was selected because it enabled the research to fuse both qualitative and quantitative data. The technique facilitated the use of a variety of approaches to answer research questions that cannot be addressed using a singular method. Therefore, the utilization of a mixed methods research approach assisted the researcher to adequately address the research questions using various methods.

A case study approach dominated the research. It allowed direct observation, and a researcher can understand complex issues on poverty alleviation in the area. Social scientists, in particular, have made wide use of the qualitative research method to examine contemporary real-life situations and provide the basis for the application of ideas and extension of methods (Plessis 2007:148). A case study has proven particularly useful for studying educational innovations, evaluating programs and informing policy makers (Merriam, 2009).

However, Stake (2005:455) argued a case study is time consuming and expensive sometimes. In case studies, the researcher may use his/her instincts and ability throughout most of his research effort. The researcher bias is highly pronounced in case studies.

From the above disadvantages, the researcher therefore avoided bias and presented data and used research instruments correctly in order to produce a reliable and valid report.

3.2. Study area

The Filabusi catchment is situated in the Southeastern region of Matabeleland in Zimbabwe. The district consists of mainly sub-catchments with the study location being located in the Filabusi surroundings. The area comprises of seven land tenures, which are commercial mines and communal areas. Gold is the most important mineral within the locality and is extracted at both commercial and individual levels, which rely on it for employment and income.

Communal subsistence farming within the surroundings consists of growing the main cash crops such as maize and small grains. White commercial farmers who used to do cattle ranching previously dominated the area, but mostly black, powerful elite individuals following the land re-distribution program now own it. This has contributed to a decline in commercial farming in the area with some of the land being converted into a wildlife sanctuary.

The Mayfair Dam provides water to areas such as Bulawayo, Umzingwane, Filabusi and other surrounding areas (Lupankwa *et al*. 2006). As a result, it is important to regulate and govern the different classes of mining and mineral processing operations within the Filabusi district, as well as their effect on the environment so as to minimize conflicts over sharing and control of natural resources among different actors. The site of the study was selected through purposive sampling that does not rely on probability. During the process of site selection, personal judgment and extensive literature on ASM activities was used to select Filabusi district, as it is representative of the significant land uses (ASM activities and farming) which are of interest to

the study. The conditions within the Filabusi Catchment best serve the objectives of the research as the situation in Filabusi Catchment represents other similar cases within mining areas in Zimbabwe. Figure 1 shows the aerial geography of the study area.

Fig 3.1: Study area

Source: Research data 2021

3.3.0 Sampling

3.3.1 Sampling procedure

A simple random sampling technique was used to produce a sample. The researcher also identified key informants and a simple random sampling technique was used to select a sample. Pratt and Loizos (1992:60) say, "A simple random sampling is sample a few individuals from a population by way of giving them number and use the samples". The term random ensures representativeness of the sample. He further says, "A simple random sample from a finite population is a sample selected such that each possible sample combination has an equal probability of being chosen. Once an item is selected it is not replaced".

3.3.2 Sample Size

The size of the sample was selected as representatively as possible to minimize sampling error. A sample of 51 respondents was selected from a population size of 600. This figure was reached after consideration of the finances available for data collection and resources of the self-sponsored researcher. Table 3.1: Shows sample size for each category of the population.

Table 3.1: Sample Procedure matrix

Target Group	Population	Sample
Miners	500	40
Key Informants	100	11
Total	**600**	**51**

Source: Research Data 2021

3.4. Primary data collection

3.4.1. Quantitative data

Quantitative primary data collection comprised of both spatial and non-spatial data. The methods utilized in the research consisted of a structured household survey with close-ended questions.

3.4.2. Questionnaire survey

A closed ended questionnaire was used on artisanal miners. Gold millers were not included in the sample group due to their unwillingness to cooperate, though they participated in the use of interviews and focus group discussions. The use of close-ended questions was adopted, as it is amenable to statistical analysis and graphical representation.

The questionnaire consisted of two sections: the first section consisted of the demographic profile of the sample group and the second section had questions that focused on mining activities and their impacts on poverty alleviation. The questionnaire was used to obtain information based on the artisanal small-scale gold mining trade and women composed the highest percentage as they are the family caregivers and they are most vulnerable group in mining set-ups.

Convenience sampling was used to select women artisanal miners for interviewing based on their proximity to where ASM activities occurred. Dornyei (2007) defined convenience sampling as a method where a sample of a target population is selected based on certain criteria such as expenses on the researcher, geographical proximity, accessibility and availability at a certain time. This research method was utilized based on the nomadic nature of artisanal miners and their willingness to volunteer to the study.

The artisanal miners interviewed were chosen through systematic random sampling techniques that allow a researcher to have a wider coverage of an area and opinions by skipping the next miner after interviewing one.

3.4.3. Questionnaire survey analysis

Survey data was imported into SPSS v16.0, which was used to analyze questionnaire content. SPSS allows for the coding of questionnaire responses and produce graphical illustrations and charts.

3.5. Qualitative data

A combination of qualitative tools was used in data gathering and these included direct observation of occurring activities, key informant interviews and focus group discussions.

3.5.1. Focus group discussions

Focus group discussions (FGDs) are informal dialogues involving a group of 6-8 respondents where an issue of common interest is discussed and information is obtained in a short amount of time (Kothari, 2004). Three FGDs were held at each of the mining sites sampled by the researcher and were differentiated as follows: men, women and youth. Each FGD comprised of eight respondents. The age group of the men FGD ranged from 18-50 years. The women FGD had participants aged from 24-37 years old, with the youth FGD ranging from 17-25years old. Three FGDs were done so as to gain different perspectives on artisanal gold mining within the Filabusi catchment, the alternative sources of household income and to determine how mining has impacted on poverty alleviation in the area.

The participants included small-scale farmworkers, artisanal miners and local villagers. The discussions assisted the researcher to gain insight into artisanal mining and the effect it has on their livelihoods within the area. The respondents also engaged in participatory mapping whereby respondents showed an understanding of their area and the changes that occurred over time

due to the upsurge of artisanal small-scale gold mining in the catchment. An asset audit was conducted to establish the net worth of each miner and how mining has improved the livelihood in the area.

3.5.2. Focus group discussion analysis

Analysis of data from FGDs was carried out by transcribing the discussions and through content analysis by selecting the frequently raised issues. This was supplemented by observational data made by the researcher to interpret statements made during the discussions.

3.5.3 Key informant interviews

Key informant interviews are formal conversations in which specific questions are posed to the interviewee by the interviewer (Creswell, 2013). A total of six key informant interviews were conducted during the research. Three of the interviews were carried out with government officers such as the Department of Social Development, Department of Small and Medium Enterprises and the chairperson of the District Civil Protection Committee. The other key informant interviews were carried out with a woman representative, Local Councilor and a traditional leader.

During face-to-face interviews, the interviewer was able to note the gestures and expressions from the interviewee so she managed to change or restructure the question in order to get the intended information and came up with valid and reliable information worthy for the research. There was clarification of answers and questions unlike in use of a questionnaire where questions are structured and no explanation given especially to the illiterate group.

Face to face interviews have an advantage in that the interviewee does not need to be able to read and write in order to participate in the study because the researcher is there to ask and record findings. Thomas and Nelson (1990) says, the researcher as the primary instrument carries out interviews and observations and normally does data collection. This method assisted especially within the illiterate populace.

Gwimbi and Dirwai (2003:79) identify some advantages related to interviews as being a flexible and adaptable way of data collection. They offer the possibility of modifying one's line of enquiry. One can easily follow-up and probe interesting items coming up during the interviews, a thing that is not flexibly done with a questionnaire.

Disadvantages related to interviews include, that it is time wasting, the sessions vary in length but anything under half an hour might not come up with valuable data yet excessive time annoys the interviewees. As an interviewer terminates the interview, she/he might reduce samples and a possible bias. In addition to that, interviews require careful preparation and this is time consuming. This involves arrangements to visit, securing the necessary permission and even confirmation of those arrangements. During interviews, some people are unwilling to co-operate. In capturing information, when the researcher wishes to record, she/he might face challenges where the interviewee might object that as well as expenses related to tapes and compiling the information in a report.

During recording of responses in interviews, there might be bias and that affects and lead to errors. Equally also the interviewer might fail to interpret the given answers correctly and that distorts the meaning of the responses from the

participant. More over the questioning technique might be a challenge making it difficult in obtaining required answers as per the assumptions of the researcher. For questions that are coded, the recording is based on the judgment of the researcher and this affects the outcomes of the study.

3.5.4. Key informant interview analysis

Content analysis is a technique utilized for making data inferences by compressing text into fewer concept categories (Stenler, 2001). This was done through identification of issues and patterns that were continuously raised during interviews.

3.6 Data Presentation and analysis procedures

3.6.1 Data presentation

The obtained data was presented in tables in order to give an overview of gathered information. Tables have an advantage of being self-explanatory. The data was also presented as graphs to show relationships between variables. The data interpretation and or explanation was converted to graphs and tables.

3.6.2 Data analysis

In this research, data variables most central to the study were analyzed. These variables were generally analyzed for presentation in the form of tables and graphs. Interview sheets were sorted and checked for completeness and were locked in a safe place for future reference. Quantitative and qualitative interview data was coded and analysed using Statistical Package for Social Sciences (SPSS version 16.0).

3.7 Reliability and Validity

Validity in the research study was based on both face and content validity. For face validity, the research instruments were pre-tested on a small group to establish if the respondents will understand the questions. Phrasing of the questions was also analysed to check if it brings out the intended research objectives. Content validity was ensured by cross-referencing. Credibility of the research findings will be based on existing theories in literature.

To ensure reliability of the research, a well-phrased and objective interview sheet was used in three different small FGD groups. The results from the three groups were examined and analysed basing on the documented literature dwelling on the same research topic. For credibility purposes, questions were answered in the presence of the researcher, thereby allowing the researcher to answer questions or queries that arose from the respondents, as well as enabled the researcher to gain 100% response rate.

The qualitative data obtained from the key informants i.e., textual phrases, were organised into categories/themes and sub-categories on a Microsoft Excel 2010 spread sheet to ensure dependability.

3.8 Ethical Considerations

Research ethics comprise of appropriateness of behaviour and research conduct expected from researchers. Ethical concerns were observed by seeking permission from the University and the area local leadership before data collection, analysis and reporting. Participation of the respondents was voluntary and strict measures were enforced to guarantee the integrity of data

collected. They were assured that their responses and names would remain anonymous and were only to be used for academic purposes. Moreover, participants were told that they would be free to withdraw from the study. The research avoided the inclusion of sensitive and private information on the questionnaires.

3.9 Chapter Summary

In this chapter, the researcher focused on the research design, research instruments and techniques that were used in capturing the information on the impact of artisanal mining on poverty alleviation in Insiza, Matabeleland South. It discussed the research instruments, data collection procedures and analysis procedures that were to be used in the study. The section on data collection focused on methods and instruments employed in collection of data. The last section on data analysis described how data had been captured, analyzed and presented. Ethical procedures used and adhered to when relating to the research process and research participants were discussed.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1Introduction

The previous chapter discussed the research methodology employed in executing the research. Data collected was presented, analyzed and interpreted in this chapter. The thrust was to provide meaningful summaries through a range of presentation techniques from the large volumes of raw data collected. The presentation tools that were used are tables, graphs and charts to group, organise; collate and relate; analyze and deduce meanings that would answer the main research questions from the collected data. The arithmetic calculations and percentages were rounded off to the nearest whole number to simplify the analysis. The Statistical Package for Social Sciences (SPSS 1998) Version 16.0 and excel computer software were used for entry and analysis of quantitative data to generate descriptive statistics. Qualitative and quantitative data analysis techniques were used to evaluate information gathered from the research.

4.2 Section A: Demography

The main focus on the demographic data was gender, age, marital status and educational levels of the respondents. A total number of 51 respondents' mainly artisanal farmers and key informants were interviewed.

4.2.1 Distribution of the farmers by Gender

Empirical results indicated that the majority of the respondents (60%) were males whilst 40% were females as shown in table 4.1. The results shows that balance of power in the mining sector is skewed in favour of man. However, women and school going pupils have penetrated the artisanal mining sector.

Table 4.1: Distribution of respondents by gender

Gender	Frequency	Percent
Male	24	60.0
Female	16	40.0
Total	**40**	**100.0**

Source: Research Data 2021

According to Dodo (2013), men have dominated artisanal mining in Africa, Zimbabwe included. According to the Filabusi Women in Mining Association (2021), it is very difficult to get mining rights if you are a woman from the Ministry of Mines that has some autonomous licensing powers. However, the government of Zimbabwe has made great efforts to engage women in mining to formalize their mining operations. Chingwaramuse (2004) noted that the challenges that women are facing revolve around societal opinions on gender equality. They argued that society plays a bigger role in demotivating young women into the mining sector usually by patriarchal approach that demean the mindset, physic and general capabilities of women. Dreschler (2001) asserted that the ASM sector is well known for its male dominance nature because of the physical nature of the activity and the fact that women's access to social, financial, knowledge and time is dominated by men. Despite the challenges, the research results shows that women and young girls constitute approximately forty percent of small-scale miners in Zimbabwe. Accepting women and young girls into the sector will help reduce and alleviate poverty in Zimbabwe, as women are primary care givers in most societies.

4.2.2 Respondents' Ages

Respondents appear to have been unevenly distributed across the adult age groups. Figure 4.1 below shows the proportions of respondents' age groups.

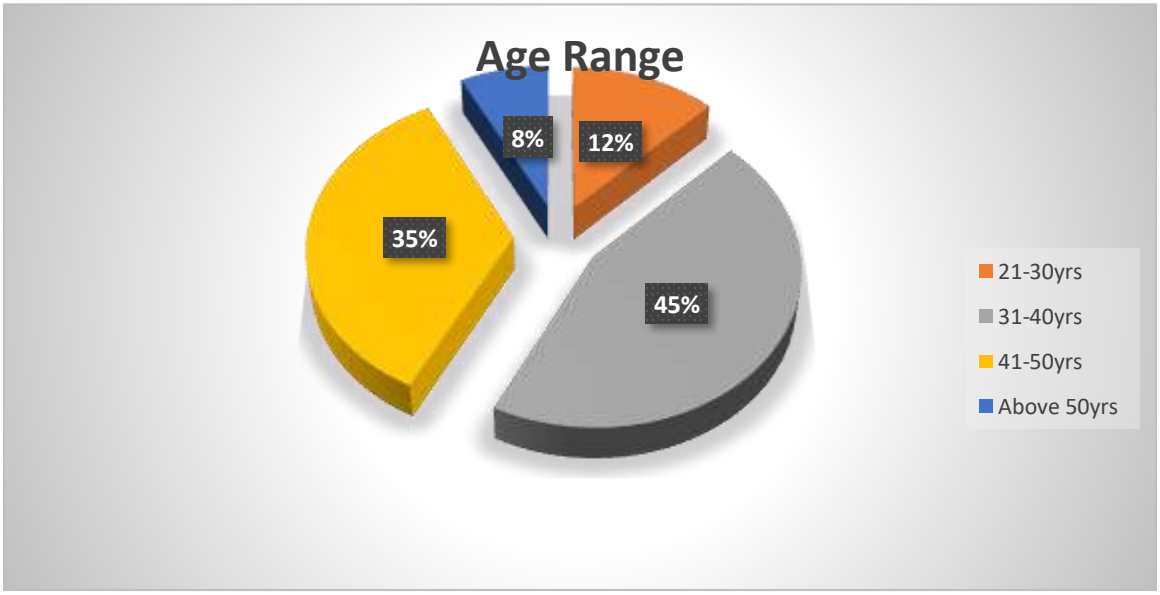

Figure 4.1: Respondents' Ages

Source: Research Data 2025

The dominant age groups of the artisanal miners were 31-40 years and 41-50 years for both males and females, this constitutes to the age groups that is recognized as economically active and contributing to the growth of the country. Artisanal miners aged above 50years were few, with most of them resorting to less laborious livelihoods such as crop farming and poultry rearing. The absence of men who are above 50years and a few cases of women actively involved in the mining activities maybe because of the migratory and nomadic nature of ASM including the harsh working conditions that require physically able-bodied populace. The majority of the female respondents during the focus group discussions stated that they had many dependents to take care of and that they are married so they needed to take care of their homes.

4.2.3 Distribution by education level

Education has an impact on the skills and attributes of an individual. Handling of diverse issues need some form of education. Figure 4.2 shows the level of education attained by the respondents.

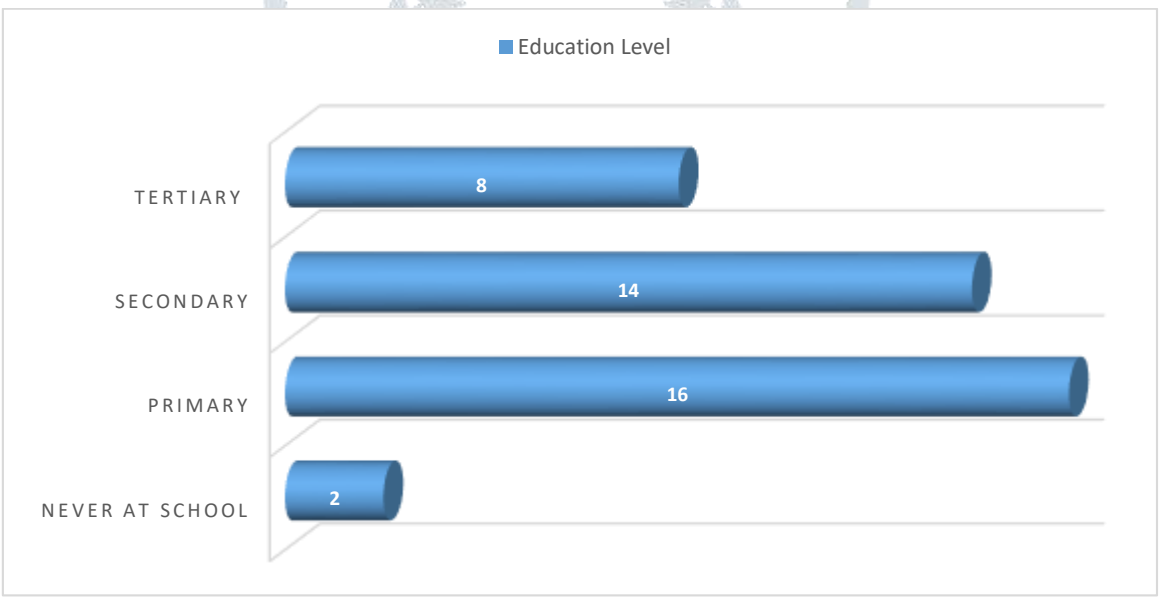

Fig 4.2: Distribution of respondents according to levels of education

Source: Research Data 2025

The highest level of education attained by the majority of respondents is primary education while two have no formal education at all as depicted in figure 4.2 above. Eight respondents have attained tertiary education. The research results show that the level of education is not considered as an entry barrier in the mining sector. This is in contrary to scholars like Julie (2008) who claims that education plays a pivotal role in any career choice. The research results also shows that artisanal mining has absorbed everyone despite the educational level. Some of the respondents with non- mining university degrees are pursuing artisanal mining as full-time economic activities. This contradicts previous studies carried out before by Marongwe (1995) and Shoko (2002) which stated that the educational levels of artisanal miners are low. This can be attributed to the decline of the economy and the high levels of unemployment that therefore attract individuals from different educational backgrounds to pursue artisanal small-scale gold mining as a livelihood option.

4.2.4 Distribution of respondents by marital status

The study established that that the majority of the respondents, 65% are married while 29% are single, 11% divorced and 4% are widowed as shown in figure 4.2. The deduction from the results is that there is a higher percentage of married (65%) in the artisanal mining.

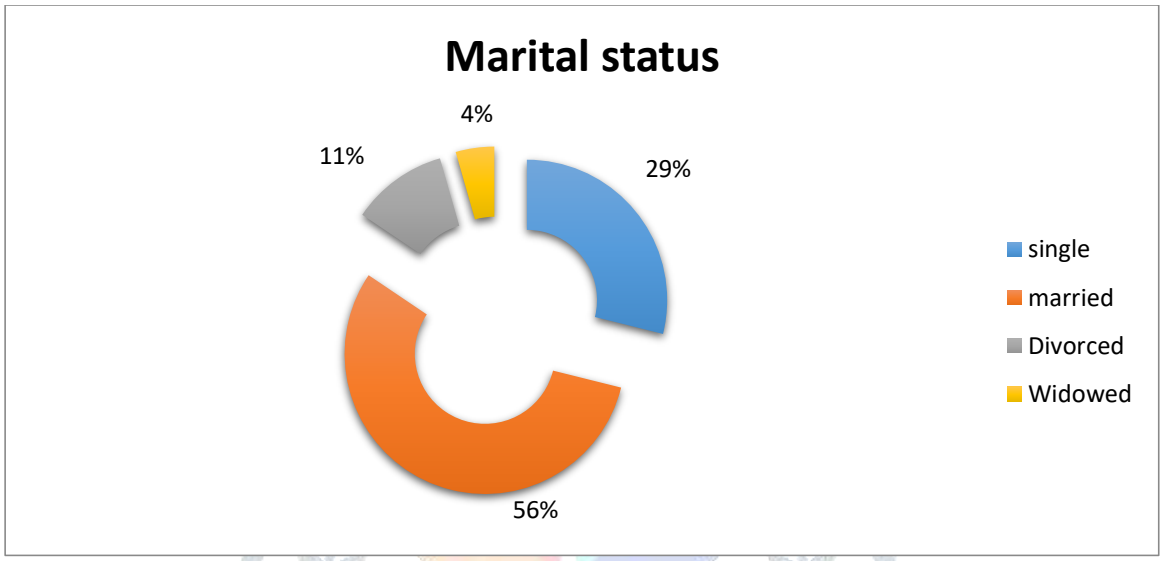

Figure 4.3: Distribution of respondents by marital status

Source: Research Data 2025

The main drivers for engaging in artisanal small-scale gold mining were lack of employment and a need to increase family income from selling the mineral. The need to increase income acted as a pull factor that attracted 65% of the married respondents, 29% single and 11% divorced. Women required more income to supplement their husbands' income and to oversee the daily running of their households. This trend has been propelled by the lack of formal employment following the closure of underperforming industries and an increase in retrenchments over the past decade (Spiegel, 2009).

4.3 Artisanal Small-Scale Mining and rural poverty alleviation.

4.3.1 Asset acquisition by artisanal miners

Artisanal mining can be a major source of income for increasing the wealth of rural miners and providing opportunities for alternative livelihoods. The artisanal miners have acquired a number of assets that they did not have before they started mining. Figure 4.1 shows some assets that the miners have purchased from mining proceeds.

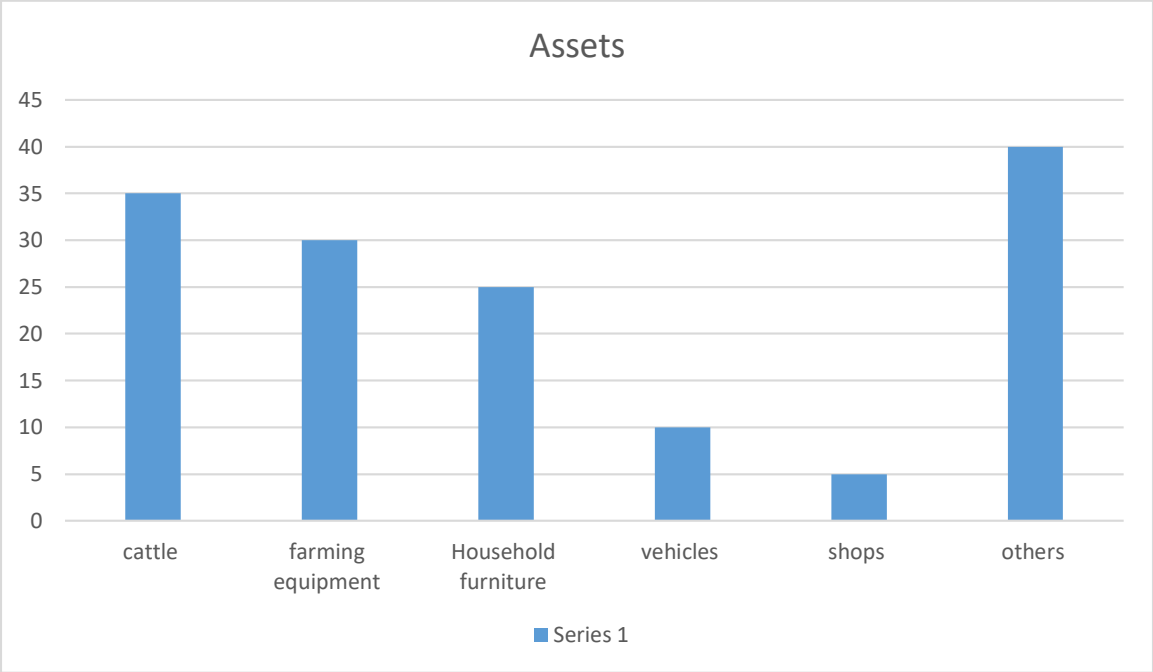

Figure 4.1 Assets acquired by ASMs

Source: Research Data 2021

The research results showed that all the miners have purchased an asset from the mining proceeds. Cattle and farming equipment are given first priority by most artisanal miners. According to Scoones (2009), agriculture is viewed as an indicator of rural livelihood enhancement. Cattle is a measure of wealth to most rural farmers. Some miners have invested in capital assets such as mining vehicles and shops. Such assets provide a sustainable poverty alleviation strategy in cases of economic shocks. Since mining is seasonally in the district, agriculture provides a stopgap measure for the mining sector. Income gained from ASM changes livelihoods significantly. The results showed that the spending habits of miners enhanced their livelihoods significantly, affording them a far much better life. Most of the miners have also managed to move from mud-thatched houses to well-furnished solarized brick houses.

4.3.2 Monthly income

The average monthly income for the artisanal miners varies depending on the mine's head value and the technology used by the miners. Figure 4.2 shows an average income of the miners per month.

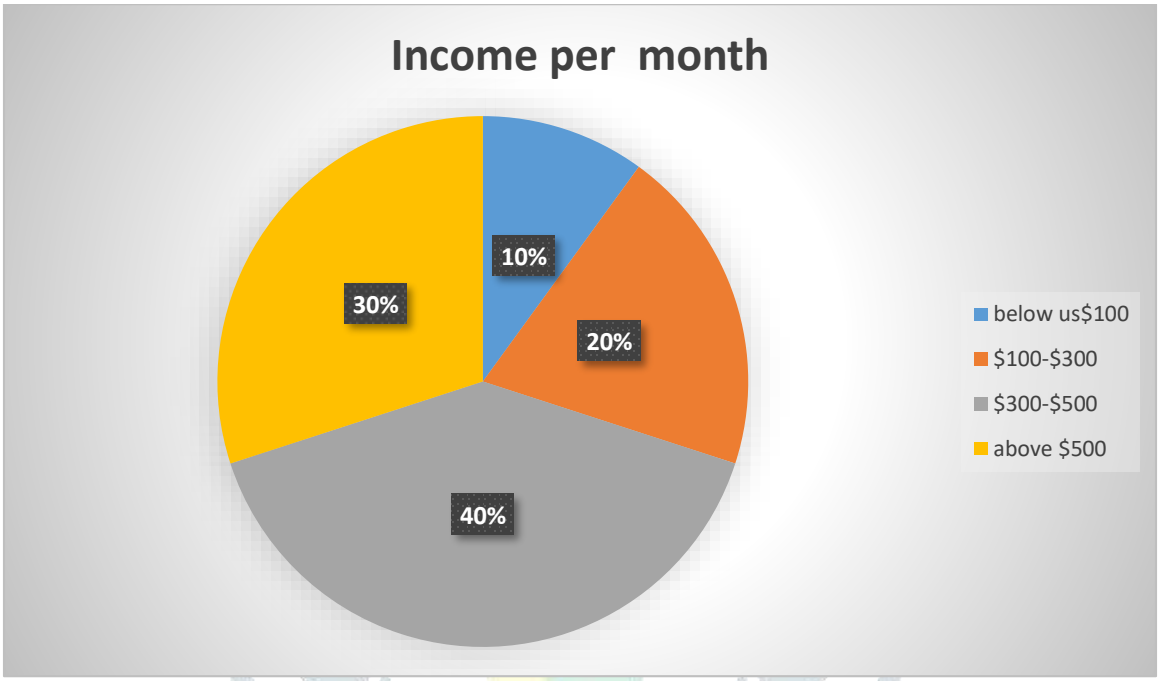

Fig 4.2 Monthly income for the miners

Source: Research data 2025

Most of the miners (40%) get on average between us$300-$500 per month. Those getting between us$100 per month are employed laborers 30% of the miners get above $500 per month, an amount that is general above most government employees' monthly earnings. Thus, these earnings make a significant contribution to livelihood enhancement. As such, socio-economic growth of some artisanal miners is noticeable, as they have managed to construct uptown houses in the low-density suburbs of Filabusi.

4.3.3 Number of meals per day

A minimum of three meals per day is a good sign of a family that is out of poverty. A poverty-stricken family hardly gets more than two decent meals per day. Figure 4.3 shows that most of the families in the gold mining area gets at least three decent meals per day.

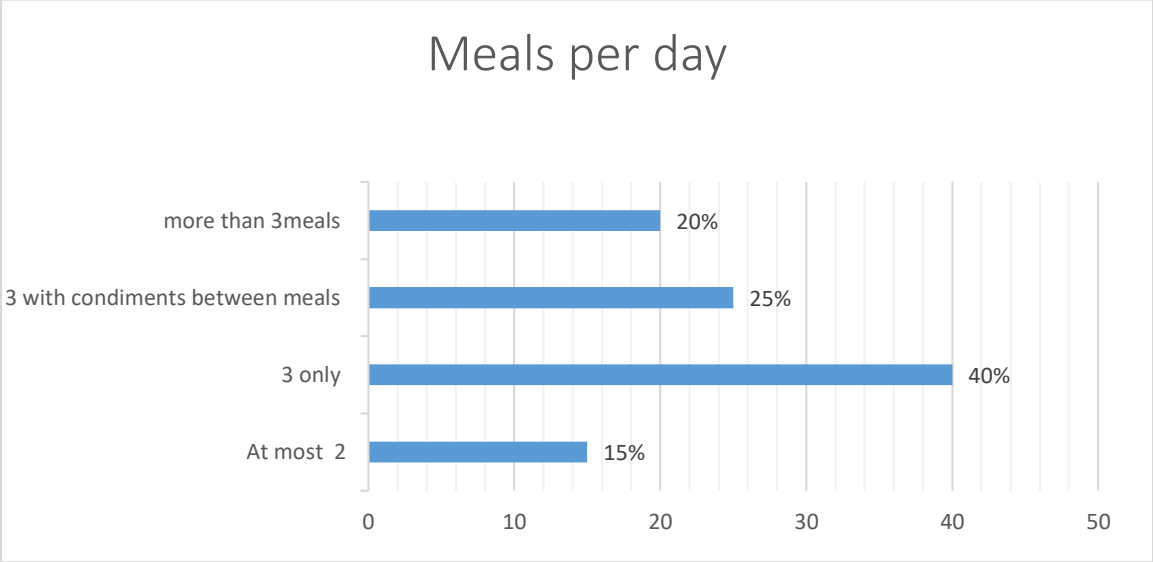

Fig 4.3 Number of meals of miners' families per day

Source: Research data 2025

Failure to provide at least three decent meals per day is common among irresponsible miners who spend most of their earnings in other activities such as beer drinking and prostitution. The research showed that amongst most miners only 15% fail to provide at least three decent meals per day. 25% goes a step further by providing some condiments such as fruits, creams, soups and dry chips between meals. Since 40% of the ASM sector is composed of women, food provision has been prioritized. Many former farmers in Filabusi have abandoned farming in favor of artisanal mining. This is a clear indication that artisanal is better option for poverty alleviation in the dry areas of Zimbabwe.

4.3.4 Alternative livelihood options

The research findings revealed that apart from artisanal mining being the major employer and livelihood option, it has given birth to a number of downstream micro enterprises such as vending. Most women found in the mining sector are not directly involved in ore mining but provide support services and also sell food items to the miners. One of the women respondents, a widow revealed that she managed to pay school fees for her three children up to university level from vending in the mining sites. During the Focus group discussions, one of the respondents echoed that ASM poses a significant capacity of accumulating wealth on households as they are managing to cater for their own needs without struggling, they are now able to earn decent living, sustaining their livelihoods from mining or buying and selling gold.

4.5 The limitations of ASM in reducing rural poverty

The negative effects of artisanal mining can easily overshadow its effectiveness in addressing poverty in rural communities especially when one looks at the social dimensions of poverty especially in terms of health, violence, and environmental degradation.

4.5.1 The Vicious Poverty Cycle

Artisanal miners tend to be caught up in a vicious poverty cycle, mainly due to the use of obsolete technology and violence involved in the mining sector. The inappropriate technology leads to environmental degradation, which negatively affects the health of miners and eventually their productivity. The low productivity means low incomes and the poverty trap begins again. The cycle of poverty is exacerbated by failure of governments to recognize and mainstream artisanal mining activities. Because of the illegal nature of the trade, artisanal mining is characterized by increased social instability. Furthermore, because of the illegality associated with artisanal mining, banks and other credit agencies are unwilling to extend credit lines to miners and therefore they cannot invest in better technologies. Because of breakdown in law and order in most of these mining areas, those who have some savings tend to spend a lot of their savings on alcohol, prostitution, and gambling at the expense of productive investment.

Stakeholders interviewed argued that though miners could feed their family the sector has little to do with their self-reliance and cope with the challenges they face. The sector has little to do in building more secure and resilient livelihoods for the majority household gold miners as far as it failed in enabling them to get sufficient access to assets and cope with stress and shocks. It is more of a short-term and consumption-oriented activity. The Department of Social Development officer stressed that the district food-relief register is mainly composed of the artisanal miners as they are classified as food insecure people.

4.4.2 Health and safety risks

In an attempt to reduce poverty in the communities, artisanal miners face many health and safety risks. Air pollutions through blasting and dust fumes adversely affect the health and well-being of gold miners as well as communities residing closer to the mining sites. The ministry of Health official highlighted that diseases such as skin disease and diarrhea from poor sanitation are quite prevalent in mining areas. He also reiterated that artisanal miners are vulnerable to high incidence of STDs and HIV/AIDS due to high prevalence of prostitution in mining compounds. The availability of the young and sexually active in addition to their mobility contribute to the spread of sexually transmitted diseases. M'pele (2002) confirms that having the combination of the young and very mobile population has contributed to the increase of HIV/AIDS related diseases. Most mining shafts are not secure enough especially during the rainy season, the tradition leaders confessed that the district has lost a number of youths in illegal mines. In year 2020, ward 16 alone recorded seven deaths due to insecure mining shafts.

Cases of teenage pregnancies leading to temporary marriages were also recorded in the ward. Young girls in their teen ages mostly offer themselves to the gold panners for money, due to poverty. This is because of the influx of miners into the mining communities leading to immoral acts, which results in teenage pregnancies and unplanned marriages. In so doing, they end up being impregnated by the gold panners; the majority being from other rural areas or even towns, some being of no fixed abode.

4.4.3 Poor environmental practices

Among the array of challenges caused by artisanal mining is poor environments practices. 60% of the respondents blamed the ASMs for disregarding proper environmental practices. 'Illegal artisanal miners have caused havoc on the environment', exploded one the stakeholders during a focus group discussion. Animals are being trapped in unclosed pits and deforestation is causing havoc, trees are being cut willy-nilly. The respondents also complained of the artisanal miners who opened a gold mine shafts along the Insiza River. Such a practice cause siltation in the area resulting in water shortages for people and livestock in the area. Veld fires caused by artisanal miners when detecting gold are a menace to the vegetation of the area. Traditional leaders find it difficult to correct such practices since some of the perpetrators will be in possession of official letters from the Ministry of Mines. Fig 4.4 shows open pits left by illegal miners and the devastating effects of veld fires in Filabusi 's Amazon mining area.

Fig 4.4: Open pits and Veldfires in ward 16, Insiza

Source: Research Data 2024

During the investigations carried out it emerged that Insiza district was also grappling with social problems emanating from gold panning as indicated in Figure 4.4. Gold panners burn the vegetation and open massive excavations from which they move huge tones of soil every day. The activities of artisanal small-scale miners have destroyed the fauna and flora of the Amazon area tremendously. Stakeholders complained that the mobile artisanal miners just abandon and they do not fill up the pits after extracting the gold ore. Farmers have lost a number of beasts in these open pits and virgin agricultural soil has suffered from erosion. The worst part of the mining activity is that it only benefit the artisanal miners. The community does not gain anything since most of these miners are illegal and they do not pay tax to the government.

4.5 Chapter Summary

The research revealed that the production of gold by the small-scale mining sector in the studied communities has contributed immensely to the socio-economic lives of individuals and communities. It can be concluded that artisanal mining is one of the stopgap measures of fighting poverty in the country. ASM generally is being regarded as the shortest route out of poverty and it is an activity to complement insufficient income. At the moment, it remains the major source of livelihood and income in the district since the area is affected by perennial droughts and lack of formal employment. The sector creates employment and wealth to the rural communities. Most artisanal miners in the district have acquired many assets especially agricultural assets. Down streams enterprises such as vending, gold buying, flea markets and retail shops emerged as a result of artisanal mining in the area

Research has shown how artisanal mining assists rural households in building more dynamic and resilient livelihood strategic portfolios by, for instance, 'dovetailing' artisanal mining and farming economies. Further, it is a stimulus for trade and subsidiary business development around mine sites just as evidence in industrial or larger-scale mining operations. Generally, the living standards of the people in Amazon area have improved as demonstrated by the number of meals eaten per day and the diversity of assets acquired from mining proceeds.

The darker side of artisanal mining was not spared in this research, therefore, it can be concluded that its negative effects overshadow the benefits of artisanal mining in addressing poverty. The socio-economic, environmental, and health negative impacts of small-scale mining operations in Insiza district outweigh the benefits derived from the mining activities. Bold measures need to be taken to ensure that artisanal small-scale mining is done in a way that is economically viable, socially acceptable and environmentally or ecologically sustainable. According to the South African Institute of International Affairs, which in May 2014 published a comprehensive policy briefing on the topic, "artisanal gold-mining has emerged as one of the few means of poverty alleviation for poverty-stricken people in mineral-rich communities." Despite this, however, the government of Zimbabwe is yet to support the industry – in fact, it has criminalized small-scale mining altogether.

Government opposition to mining is a result of concerns that mining leads to environmental degradation and political instability. To some extent, these concerns are legitimate – mining relies not only on the use of dangerous chemicals but can also lead to water pollution and landscape degradation, it also results in community tensions when workers of differing ethnicities and ideologies flood into mining towns.

Traditionally, Zimbabwe has enforced the criminalization of artisanal mining, arresting those who are caught engaging in the practice. However, because artisanal miners move between gold mines very quickly, law enforcement alone has not managed to end non-commercial mining in Zimbabwe. The government of Zimbabwe would be smart to regulate rather than criminalize artisanal mining, as it benefits the country as a whole. Increased gold output over the past several years has earned Zimbabwe a reputation for being mineral-rich, and in turn, has led to increased international investment.

Mining gives individuals who would otherwise face unemployment an income, allowing them to participate in local economies, perhaps be settled and in some cases, even undertake their own entrepreneurial ventures.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter relates the conclusions of the study in accordance with the research objectives. It suggests recommendations that may be adopted to achieve poverty free mining communities.

5.2 Conclusion

Investigation into the role of small-scale mining operations in poverty alleviation in Insiza concluded that artisanal gold has contributed to the socio-economic lives of individuals and communities. Based on the research evidence, many assets especially agricultural ones have been acquired by the miners. While artisanal miners were proud that their mining activities have brought poverty alleviation to Insiza district, it was a different song from the key informants. The key informants argued that artisanal mining is a hot –spot of all anti-social activities in the district. They claimed that the socio-economic, environmental, and health negative impacts of small-scale mining operations outweigh the benefits derived from the mining activities. Artisanal mining is not a sustainable livelihood option for communities. Inferences from data analysis indicated that artisanal small-scale gold mining in Insiza district is likely to result in numerous disasters that included social, economic, as well as ecological disasters. Uncoordinated artisanal mining has caused a lot of harm to the district especially to the arable land. River bank mining is also another threat to human existence. The government needs to address the negative impacts of artisanal mining so that the miners and the community benefit from the minerals in local areas.

To address these challenges and for poverty alleviation and protection of the environment, the following recommendations could be adopted to help address the socio-economic, environmental and health challenges associated with regards to small-scale mining operations:

5.3 Recommendations

5.3.1 Formalization of artisanal mining

The government should aim to remove the barriers of registering and obtaining a license in the first instance to bring miners into the legal domain, where they can be supported and regulated to reduce the negative impacts of ASM activities. It is imperative to regularize and formalize all gold mining activities through licensing, giving permanent claims and operating permits to panners to recoup some of the added costs in the form of taxes. The “cat and mouse” game between the miners and the law enforcement agencies will never help to reduce poverty in the communities. Gold mining has been regarded as well-paying venture, once the artisanal miners are regularized; they have the potential to improve the living standards of the communities.

A platform is needed for positive regular dialogue between ASM key stakeholders, government included, to provide a conduit for inclusive consultation on changes. This would also help with monitoring and enforcement challenges, by improving community relations. Such a dialogue should be informed by incorporating research on mining communities in order to understand the complexity of how operations function in host countries, so that formalization initiatives are in touch with realities on the ground.

5.3.2 Financial inclusion of artisanal miners

The artisanal miners use obsolete technology due to lack of financial support. The sector must be legalized and supported with start- up capital and equipment. Banks and other financial institutions are to consider artisanal mining sector as one of the bankable sector. Fidelity printers must remit a percentage of the mineral purchased in the district. The money must be used to purchase mining equipment, close pits dotted around the district and to finance environmental management awareness campaigns. Local councils, for accountability purposes must administer the fund.

5.3.3 Mechanization and safety precautions

The lending Institutions must offer assets loans to artisanal miners so that they can acquire proper mining equipment and safety clothing. They is need for enforcing Covid -19 regulations at mining sites such as the use of PPE equipment. Zero tolerance of mining accidents must be enforced at all mining sites.

5.3.4 Provision of compensation packages

The Ministry of Mines and Minerals should put in place laws that protect people who work as gold panners for mine claim owners. Commensurable compensation packages must be given to individuals who are injured during the mining activities. There should be no delay or denial of such payments to the affected heads of households to ensure that their livelihoods are not negatively affected. Thus, compensations paid must be commensurate in order not to make the injured worse off as sometimes they are left in a state that does not allow them to carry out any economic activity.

5.4 AREAS OF FURTHER RESEARCH

1. Strategies of empowering artisanal miners in order to reduce rural poverty.
2. The effects of illegal mining on environmental management
3. An assessment of the national policy on addressing the Environmental and Health impacts of artisanal mining.

6.0 REFERENCES

Amunhete, H. A (2009) Small-scale mining, poverty and economic development in sub-Saharan Africa. University of Free State: Bloemfontein.

Auty, C. and Groove, H, (1999) Fundamentals of Social Research Methods, Cape Town, Juta And Company.
Barry, N .S. (1996) Management of Mining, Quarrying and Ore Processing, Waste in European Union: Study made for DG Environment, European Commission. BRGM

Bhebhe, D. 2009. Environmental damage caused by gold panning in Gwanda District Zimbabwe. University of Free State, Bloemfontein.

Bryceson, D.F. 2015. “Youth in Tanzania’s Urbanizing Mining Settlements: Prospecting a Mineralized Future.” In Youth in Urbanizing Mining Settlements: Prospecting Tanzania’s Mineralized Future. African Youth and the Persistence of Marginalization: Employment, Politics and Prospects for Change. London: Routledge.

Bugnosen, F. and Jonsson, J.B. 2010. ‘Gold Digging Careers in Rural East Africa: Small-scale Miners’ Livelihood Choices’. World Development 38 (3): 379–92.

Cartier, L.E. (2009). Livelihoods and production cycles in the Malagasy artisanal ruby-sapphire trade: a critical examination. Resources Policy 34(1), 80–86.

Chachage, D. (1995) Small-scale mining in South Africa: an assessment of the success factors and support structures for entrepreneurs. Journal of Environmental Economics. vol. 6 (4

Chen R. 2013. "Small-Scale Mining: A Review of the Issues." Technical paper 75. Industry and Finance Series 23. Washington: World Bank

Chingwaramise P. (2004) Managing and Transforming Water Conflicts. Cambridge: Cambridge Press University.

Collier Z. 2007. Research Methods in Applied Linguistics'. New York: Oxford University Press.

Conway P (2011) Competitive Strategy: Techniques for Analysing Industries and Competitors, New York: The Free Press.

Creswell, J.W. 2013. Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 4th ed. California: SAGE Publications.

Dreschler, B. 2001. "Small Scale Mining and Sustainable Development within the SADC Region." 84. Mining, Minerals and Sustainable Development. England: SANTREN/ITDG.

Gwebu, T. D (2012) Botswana's mining path to urbanization and poverty alleviation, Journal of Contemporary African Studies, 30:4, 611-630, DOI: 10.1080/02589001.2012.724868
Hayes, K, and R Perks. (2008). "Women in Artisanal and Small-Scale Mining Sector of the Democratic Republic of Congo." In High-Value Natural Resources and Peace Building, 529–44. London

Hayes, K. 2008.Small-scale mining in Africa—A case for sustainable livelihood. Amsterdam, the Netherlands: Common Fund for Commodities.

Hentschel, T., F. Nruschka, and M. Priester. 2003. 'Global Report on Artisanal and Small-scale Mining'. Working Paper No. 70, Mining, Minerals and Sustainable Development (MMSD) Project. London: International Institute for Environment and Development (IIED)

Hilson, G. (2011). "Artisanal Mining, Smallholder Farming and Livelihood Diversification in Rural Sub-Saharan Africa: An Introduction." Journal of International Development, no. 23:1031

Hinton, R.T.G. 2009. Small-scale mining, poverty and economic development in sub-Saharan Africa: An Overview. Resources Policy34 (1–2): 1–5

ISO 14001 (2004) Environmental Management Systems – Specifications with Guidance for Use, SAZ, Harare

Jennings, N. 1999.Social and labour issues in small-scale mines. Geneva, Switzerland: International Labour Organization.

Jønsson, J.B., and D.F. Bryceson. 2009. 'Rushing for Gold: Mobility and Small-scale Mining in East Africa'. Development and Change 40 (2): 249–79

Kambani, S.M. 2001. Small-scale mining and cleaner production issues in Zambia. Lusaka: University of Zambia

Kambani, S.M. 2001. Small-scale mining and cleaner production issues in Zambia. Lusaka: University of Zambia.

Kamete, A. Y. 2007. When livelihoods take a battering...Mapping the „New gold rush" in Zimbabwe's Agwa-Pote Basin. Project MUSE scholarly journals Article.

Kanyenze, G., T. Kondo, P. Chitambara, and J. Martens. 2011. Beyond the enclave: Towards a pro-poor and inclusive development strategy for Zimbabwe. Harare, Zimbabwe: Weaver Press.

Love, D. 1997. Measures to control artisanal mining of gold: Comments on proposals by the Ministry of Environment and Tourism, Belmont: Wardsworth

Lulie, C (2008). Artisanal Mining in Zimbabwe and Its Implications to Rural Livelihoods." Journal of Contemporary African Studies30 (2): 219–33.

Luphankwa P. and Marc, S. P. (2006) Illegal artisanal gold panning in Zimbabwe: A study of challenges to sustainability along Mazowe River'. The socio-economic impact of small-scale mining in developing countries. The Netherlands: AA Balkema

Mabhena, C. 2012. Mining with a 'Vuvuzela': Reconfiguring artisanal mining in Southern Zimbabwe and its implications to rural livelihoods. Journal of Contemporary AfricanStudies30:219–33

Maponga, O. 1995. Small-scale mining and the Environment in Zimbabwe: The case of alluvial gold panning. Harare: University of Zimbabwe.

Mawowa, S. 2013. The political economy of artisanal and small-scale gold mining in central Zimbabwe. Journal of Southern African Studies39:921–36.

Merriam, S.B (2009) Qualitative Research: A guide to design and Implementation. San

Mukwada, G. (2000), Natural Resources Conservation and Management, Zimbabwe Open University: Harare

Murray, A. (2003) Small-scale gold panning in Zimbabwe: Economic costs and benefit and policy recommendations. Belmont: Wardsworth.

Ncube, B., Mazungu, E., Love, D. Magombeyi, M., Gumbo, B. & Lupankwa, K. 2010. The challenge for improved rural livelihoods: managing risk, mitigating drought and improving water productivity in the water scarce Limpopo. (Unpublished CPWF project report No. 17). Harare: CPWF.

Nyambe, S. C (2009) A step towards sustainable development in mining in Zimbabwe. (Paper presented at the Sixth Symposium of the Research Council of Zimbabwe held Harare, Zimbabwe in August 1999). Research Council of Zimbabwe, Harare.

Phiri, S. 2009. "Impact of Artisanal Small Scale Gold Mining in Umzingwane District (Zimbabwe), a Potential for Ecological Disaster." MSc, South Africa: University of the Free State.
Politet (2001)

Rakotsoane F.C.L. and Rakotsoane M.A., (2003). The ABC of Research Project Dissertation and Thesis Proposal writing, Rev Ed. Roma: Choice Publishing Company. Retrieved: http:// www. uz.ac.zw/science/geology/-assmcom.pdf[2011, Jun. 10]

Sandors, S., Thornhill, T.P and Lewis, R (2016) Environmental Governance, governance Annual Reviews Environment Resources." Annual Reviews. School of Natural Resources and Environment, University of Michigan.

Scoones, I., J. Chaumba, B. Mavedzenge, and W. Wolmer. 2009. The new politics of Zimbabwe's lowveld: struggles over land at the margins. African Affairs111:527–50.

Shoko, D. S.M. 2002.Small scale mining and alluvial gold panning within the Zambezi Basin. (Paper presented at the 9thConference of International Association for the Study of Common property held in Victoria Falls in June 2002). Victoria Falls, Zimbabwe.

Spiegel, S. J. 2009. Governance institutions, resource rights regimes, and the informal mining sector: Regulatory complexities in Indonesia. World Development40:189–205.

Stake, R.E (2005) Qualitative Case Studies in N.K Denzin and Y.S Lincoln Eds. The Sage Handbook of Qualitative Research (3rd Ed.) Thousand Oaks CA Sage.

Stenler, P. (2001) Communal tenure and rural poverty: land transactions in Svosve Communal Area, Zimbabwe. Development and Change39:285–308.

Susapu, S, G and Crispen, J. (2002) Managing and Transforming Mining Conflicts. Cambridge: Cambridge Press University.

Takavarasha, G. (2013) Beyond the enclave: Towards a pro-poor and inclusive development strategy for Zimbabwe. Harare, Zimbabwe: Weaver Press

Thomas and Nelson (1990) Artisanal mining in developing states. New York: Oxford University Press.

Tobin, S. (1994). What's in a right? Gold mining, decentralisation and neo liberalisation in Burkina Faso. International Conference on Global Land Grabbing. October 17–19, Cornell University, Ithaca, NY.

World Bank. 1990. World Development Report 1990: Poverty. New York, NY: Oxford University Press for the World Bank

Yin, R.K. 2009. Case Study Research: Design and Methods. 4th ed. California: SAGE Publications.

Zwane, N., D. Love, Z. Hoko, and D. Shoko. 1999 Managing the impact of gold panning activities within the context of integrated water resources management planning in the Lower Manyame Sub-Catchment, Zambezi Basin, Zimbabwe. Physics and Chemistry of the Earth3 1:848–56

APPENDIX 3 : ARTISANAL MINING ACTIVITIES IN WARD 16, INSIZA DISTRICT

Source: Research Data 2025

APPENDIX 4: VELD FIRES IN WARD 16, INSIZA DISTRICT

Source: Research Data 2024