BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SOCIAL SCIENCES AND HUMANITIES

THE SOCIO-ECONOMIC IMPACTS ASSOCIATED WITH LICENCED ARTISANAL AND SMALL SCALE MINING ON LOCAL COMMUNITIES SURROUNDING BOTHA MINE WHICH IS LOCATED IN BINDURA, ZIMBABWE

BY

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DISSERTATION SUBMITTED TO THE DEPARTMENT OF PEACE AND GOVERNANCE IN PARTIAL FULFILMENT FOR THE REQUIREMENTS OF THE BACHELOR OF SCIENCE HONOURS DEGREE IN PEACE AND GOVERNANCE

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ABSTRACT

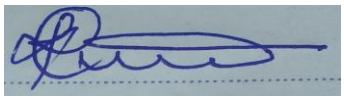
This study sought to investigated the social and economic impacts associated with licensed artisanal and small-scale mining (LASM) on local communities surrounding Botha Mine which is located in Bindura, Zimbabwe. The study sought to contribute to the body of knowledge on LASM as it provides deep insights that may be useful for understanding the research problem, and offer recommendations through which LASM can be made more sustainable, influencing policy change to better address the research problem. The study employed sustainable livelihoods theory in order to understand the research phenomena. Qualitative research methodology was used in order to ensure a comprehensive understanding of the research problem. Purposive sampling was used for selecting a sample of 35 respondents. Semi-structured interviews and observations are the primary methods of data collection used for gathering data. The data collected found that LASM create employments for local communities, reduce poverty, raise the standards of living and generate income for local authorities. However, research has also indicated that LASM is also linked with social and environmental implications such as health issues, breakdown of family structures, social unrest, change in gender roles and environmental degradation. These findings suggest the need for better regulatory frameworks and policies to mitigate the adverse effects of LASM on local communities surrounding Botha Mine.

Key Words; Licensed Artisanal and Small-Scale Mining, social impacts, economic impacts, regulatory frameworks.

DECLARATION

I Wisdom Mutedza (B213174B), hereby declare that this project is my original work and that I have not copied from any other sources without proper citation and referencing.

Student Signature:



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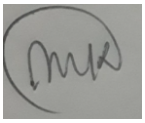

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DEDICATION

I dedicate this project to my family whose unwavering support, guidance, and love have been the driving force behind my every endeavor. Your sacrifice, encouragement, and belief in me have shaped me into the person I am today. May God bless you.

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I am deeply indebted to my supervisor, who has been an exceptional mentor, imparting valuable knowledge and guidance that has shaped me into a better person. I also express my heartfelt gratitude to my family, whose unwavering love and support have been a constant source of strength and inspiration. I am also grateful to my friends Morebright Muchenga and Givemore Samunda for their encouragement and friendship, which have made this journey even more meaningful.

LIST OF ABBREVIATION AND ACRONYMS

ASM Artisanal and Small-Scale Mining

AU African Union

GDP Gross Domestic PRODUCTS

ILO International Labor Organization

LASM Licensed Artisanal and Small-Scale Mining

SLA Sustainable Livelihoods Approach

UNEP United Nations Environmental Programme

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CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Globally, licensed artisanal and small scale mining (LASM) forms the bases for economic security to millions of people which has been vital for alleviation of poverty. This mining activity has brought socio-economic benefits to a large number of developing countries worldwide with, with over 45 million people estimated to be directly engaged in the sector (World Bank, 2020). The livelihoods of 130 to 270 million people globally depend on artisanal mining (Girard et al., 2024). The mining industry has flourished, with artisanal and small scale mining which contributes to mineral production. These mining activities have also contributed to foreign exchange earnings for many governments. As a result, it is crucial to take into consideration the contributions of LASM in Africa, Asia and Latin America. Despite its importance, LASM often lack adequate environmental and social safeguard. The economic benefits of the sector are largely associated with environmental degradation, including deforestation and destruction of animal habitat (Maponga, 2016). As such, these problems have been an area of concern in most countries that requires attention.

In Africa, small-scale mining is a significant contributor to Gross Domestic Products (GDP) and empowerment across many countries (Maponga, 2010). Africa is home to approximately 40% of the world's artisanal mining activities which range up to over 8 million people who are directly involved in this economic activity, and over 45 million people are dependents (Hilson & Gavi, 2016). Due to limited livelihoods options and hyper unemployment

rate within the continent, artisanal and small-scale mining has witnessed great expansion. In countries like Guinea, with its population of around 12,4 million, it is estimated that about 300 000 people are actively engaged in these mining practices, and another 1.5 million people benefit from this economic activity (Hilson & McQuilken, 2014). The African Union (AU) has acknowledged the importance of artisanal mining in its Agenda 2063which emphasize the need for sustainable and equitable development in the sector (AU, 2015). However, implementation of governance and regulatory frameworks remain a challenge for many African countries. This has retarded the development of the sector.

Despite the fact that artisanal and small-scale mining is a significant economic activity for many African countries, the sector has been associated with concerns about environmental degradation, health risks, community displacement and social conflicts (Maponga, 2016). In the Sothern region, the sector has been criticized for its environmental impacts including land degradation and mercury pollution for example in countries like South Africa and Zimbabwe (Mabhena, 2017). United Nations Environmental Programme (UNEP) noted that, artisanal mining activities emit the most anthropogenic mercury into the environment (Agwa-Ejon & Pradan, 2018). In East Africa, ASM has been associated with human rights abuse and community displacement in countries like Tanzania and Kenya (Spiegel, 2017). Despite these challenges, many African countries recognize the potential of artisanal mining like its contribution to the development of rural areas as well as its capacity to reduce poverty through employment creation within vulnerable societies.

The parliament of Zimbabwe estimate that there are some 500 000 registered small-scale miners in the country mainly mining gold, who supports up to 3 million dependents, although

currently operating without clear policy regulations (Gutu & Angeline, 2017). What has attracted a number of people to pursue existence in licensed artisanal and small-scale gold mining in the country is the undeniable fact that the country is rich in mineral resources which makes it a viable economic activity. As a formal economic activity, it became an easy alternative for people who are seeking sustainable economic gains. Despite the benefits licensed artisanal and small-scale gold mining presents in most of the country's communities, this sector has been associated with environmental and social challenges (Corbette et al., 2017). These challenges necessitated the need for a comprehensive understanding of the socio-economic impacts of LASM in Bindura, Zimbabwe to inform policy and practice in the sector. Even though the government tried to address this pressing issue through implementing regulatory frameworks, the problem persists and remains largely unresolved.

1.2 Purpose of the Study

The purpose of this study is to investigate the social and economic impacts associated with licensed artisanal and small-scale gold mining on local communities surrounding Botha mine which is located in Bindura district and to identify the strategies that can be employed to enhance the sustainability and equity of the mining practice.

1.3 Statements of the Problem

Despite the fact that licensed artisanal and small-scale gold mining in Zimbabwe contribute significantly to the economy of the country, and plays a major role in alleviation of poverty and reduction of unemployment in many communities of Zimbabwe, the sector is as well associated with social and economic problems. These problems are poorly understood in local communities surrounding Botha mine in Bindura, this has been attributed to lack of

comprehensive research on the phenomenon under investigation. Limited availability of recent reliable information has been depicted as prime determinants which hinder understanding of the implications associated with these mining practices. The Chamber of Mines of Zimbabwe reported that, small scale gold mining produced 31.5 tones gold in 2021 alone. The mining sector is a large employer within Bindura District; reports indicated that, approximately 1500 miners operate at Botha mine (Bindura Municipality, 2020). It provides livelihood for more than 3000 people on local communities which surround Botha mine (International Labor Organization, 2018). Reports indicate that, it produces 100 kg of gold per month (Zimbabwe Miners Federation, 2020). The lacks of comprehensive research on the effects of licensed artisanal and small-scale mining compromise the development of effective policies that can reduce the negative impacts associated with mining within defined area, and maximize benefits for local communities. The knowledge gap necessitated the need to investigate social and economic impacts, to inform evidence-based decision making and promote sustainable development in the region.

1.4 Research Objectives

1. To assess the social impacts of licensed artisanal and small-scale gold mining on local communities' surround Botha mine which is located in Bindura.

2. To evaluate the economic impacts of licensed artisanal and small-scale gold mining on local communities surrounding Botha mine which is found in Bindura.

3. To establish ways through which licensed artisanal and small-scale gold mining can be made more sustainable and equitable for local communities surrounding Botha Mine.

1.5 Research Questions

1. What are the social impacts of licensed artisanal and small-scale gold mining on local communities surrounding Botha mine?

2. What are the economic benefits and challenges posed by licensed artisanal and small-scale gold mining on local communities surrounding Botha mine in Bindura?

3. How can licensed artisanal and small-scale gold mining be made more sustainable and equitable for local communities?

1.6 Assumptions of the Study

- This research was based on a number of assumptions with regards to licensed artisanal and small-scale gold mining. There was a general assumption that, licensed artisanal and small-scale gold mining is associated with social and economic impacts on local communities surrounding Botha Mine which is found in Bindura, Zimbabwe.
- The study also assumed that, stakeholders such as government, NGOs can play a role in addressing these impacts.
- The study further assumed that, local communities possess knowledge regarding the implications associated with licensed artisanal and small-scale gold mining activities.
- The study also assumed that, this research will yield essential information which can help to inform policy making which is vital to mitigate negative impacts associated with artisanal mining.

1.7 Significance of the Study

Socio-economic challenges posed by licensed artisanal and small-scale gold mining on Botha Mine is worth of study, as the research strive to promote the ability of local communities to have sustainable livelihoods through development promoting sustainable mining practices. The research also seeks to ensure development of effective policy and regulatory frameworks that govern LASM operations. By so doing, the study will address's the knowledge gap of social and economic impacts associated with licensed artisanal and small-scale gold mining on communities surrounding Botha Mine.

Licensed artisanal and small-scale gold miners will benefit efficiently from the study's findings if this research is conducted to success. These benefits would manifest in the form of improved policy and regulatory frameworks. The research will inform policy makers to revise legal frameworks that govern small-scale mining sectors to take into account their grievances, challenges and needs. The research can inform the development of health and safety protocols and training programs for LASMs, enhancing the overall well-being of artisanal miners by reducing the risk of accidents. Research can also highlight the need for improved social services, such as healthcare, education, sanitation, and infrastructure. Research can help raise awareness about the contributions of LASM to local and national economies, thereby improving their recognition and legitimacy.

Local communities surrounding Botha Mine such as Chiwaridzo, Mupandenyama and Aerodrome were also another beneficiaries of this research. The study would highlight the importance of conserving the environment and the need to promote rehabilitation of vacated mining sites, ensuring that communities have a health and thriving environments for generations

to come. The research would also empower local communities to participate in decision-making processes related to LASM, ensuring that their concerns are taken into account. The research can highlight the need for improved social services.

Policy makers would inevitably benefit from the study's findings through informing evidence based policy making. The research would provide an understanding of the current regulatory framework, and identify gapes and areas which required improvement. By so doing, policy makers would be in a position to develop policies that align with current trends in artisanal and small-scale gold mining. Recommendations from this study would also guide policy makers in ensuring development of strategies to enhance sustainable artisanal mining, and increase the benefit of the sector in terms of its economic impacts.

Environmental organizations would also benefit from this study's focus on sustainable mining practices and environmental conservation. The research would provide valuable insights relating to environmental impacts of licensed artisanal and small-scale gold mining, informing advocacy efforts and policy formulation. Recommendations from this study would guide environmental organizations in developing strategies for promoting sustainable mining practices, reducing environmental degradation and promote rehabilitation and reclamation.

Researchers and academics are also part of the beneficiaries of this research. The research would provide valuable insights through unpacking complex issues in relation to artisanal mining, thereby informing future research and advancing theoretical understanding. The study's finding would also inform teaching and curriculum development, ensuring that students have access to knowledge that is up-to-date. The studies would also provide a framework for future research, guiding investigators in exploring the research phenomena in other contexts.

1.8 Delimitations of the Study

The delimitation of the study includes investigating the social and economic impacts associated with licensed artisanal and small-scale gold mining within local communities surrounding Botha Mine which is located in Bindura. The research was targeting a population of artisanal miners, local community members, and stakeholders directly or indirectly affected by licensed artisanal and small-scale gold mining. The time frame for conducted this study was limited to six months. Qualitative research methodology was used to collect data which include focus group discussions, and Semi-structured interviews. These delimitations are necessary to ensure in-depth analysis, manage resources, and maintain focus on key research questions.

1.9 Limitations of the Study

This study acknowledged several limitations, including its geographical scope being restricted local communities surrounding Botha mine. This has limited the generalizability of research findings to other artisanal mining areas within Zimbabwe. The sample size was limited to a specific number of people, and the research method might not have adequately captured the complexity of social and economic impacts of licensed artisanal and small-scale mining. Data quality may also be compromised due to respondents' bias. Artisanal miners or community members might be reluctant to participate or provide information. The study's timeframe did not allow for long term analysis, hence limiting understanding of long-term impacts.

1.10 Definition of Key Terms

- Artisanal and small-scale mining is the extraction or exploitation of mineral resources using rudimentary mechanization such as picks, shovels, wheelbarrows,

and panning dishes among others, thus making it manual labor-intensive and less profitable to practice on a large scale (Zvarivadza, 2018).

- Sustainable mining refers to mining practices that are environmentally responsible, socially equitable, and economically viable over a long period of time. (Aziz & Saghafi, 2020).

- Local communities refer to groups of people living in specific geographic areas, often in proximity to natural resources such as those being extracted by industries like mining (Gibson & O'Faircheallaigh, 2020).

- Legal frameworks are the set of laws, regulations, and policies that govern activities within a specific jurisdiction, such as mining operation (Harper & Pierce, 2019).

- Socio-economic impacts refer to the effects of an activity like mining on the social and economic conditions of communities and broader society (Levin, 2018).

1.11 Dissertation Outline

Chapter one introduced the foundational elements of this study, providing a background to the research topic, stating the problem under investigation, and outlining the purpose and objectives of the study. The chapter also presented the research questions that guided the inquiry, assumptions that underpinned the research, and the significance of the study in contributing to the broader field of knowledge. Furthermore, the chapter delineated the delimitations and limitations of the study, establishing the scope and boundaries of the research, and defined key terms to ensure clarity and consistency throughout the study.

Chapter two reviewed the theoretical framework which guided the study and acknowledge existing literature on the topic, focusing on the economic importance of Artisanal and Small-Scale Mining (ASM), its social impacts, and potential ways to enhance its sustainability. The chapter examined the role of LASM in local economies, its social implications, and strategies for improving sustainability. Through this review, the chapter identified key themes, debates, and gaps in the current body of knowledge, culminating in a summary of the research gaps that this study aimed to address.

Chapter three outlined the research methodology employed in this study, starting with an introduction to the research philosophy that underpinned the inquiry. The chapter then detailed the research methodology and design, specifying the population, sampling method, and sample size. Data collection methods, presentation, and analysis procedures were also thoroughly discussed. Additionally, the chapter covered pilot testing, measures to ensure validity and

reliability, and the ethical considerations that were taken into account to ensure the integrity of the research.

Chapter four presented the results and discussion of the study, focusing on the social and economic impacts of Licensed Artisanal and Small-Scale Gold Mining (LASM) on local communities. The chapter examined the specific effects of LASM on the social fabric and economic well-being of these communities, highlighting both positive and negative outcomes. Additionally, the chapter explored potential ways to promote sustainability in LASM, offering insights into best practices and recommendations for improvement.

Chapter five drew conclusions from the study's findings, summarizing the key results and implications of the research. Based on these findings, the chapter presented recommendations for sustainable and equitable mining practices, offering actionable suggestions for stakeholders to improve the social, economic, and environmental impacts of Licensed Artisanal and Small-Scale Gold Mining (LASM). The chapter also identified areas for future research, highlighting potential avenues for further investigation and knowledge generation.

CHAPTER TWO

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK AND

2.1 Introduction

This chapter seeks to review existing literature on the socio-economic impacts associated with licensed artisanal and small-scale gold mining on local communities surrounding Botha Mine which is in Bindura, Zimbabwe. The study employed a funnel approach in order to gain a comprehensive understanding of the research phenomena, which is existing literature on global, continental, national, and local level. The study will further review regulatory frameworks and policies that govern licensed artisanal and small-scale mining. The theoretical framework which guides the study will also be discussed.

2.2 Theoretical Frameworks

2.2.1 Sustainable Livelihood Approach

The research utilized Sustainable Development Approach (SLA) which speaks volume about the need to promote responsible consumption, production practices, and forges a society where resources are distributed equitably. This approach recognizes that, sustainable development requires a bottom-up approach, which is mainly built upon the needs, perspectives and knowledge of the local people (Chambers & Conway, 1992, Lu & LorawainWright, 2014). The approach has taken into account the idea that, the livelihoods of local communities is deeply rooted in their surroundings, and heavily depends on a healthy environment. People should have

access to assets for productive activities towards obtaining decent living standards, and the present livelihoods means within local community should not compromise the ability of the future generations to meet their needs. The vulnerable people should be at the center of sustainable livelihoods planning process despite the level of influence they yield over decision making (Acquah et al., 2020, Forson et al., 2016).

This approach gives attention to diverse factors that influence the ability of local communities to earn a living in a sustainable manner, balancing economic benefits and environmental protection. It aims to promote long-term development initiatives within local communities to ensure that standards of living will not decline even after the closure of mining sites. Efforts for sustainable development should aim at creating conducive environment for descent standards of living for both the present and the future generation. This framework thus facilitates the identification of strategies that promote the sustainability of both livelihoods and the environment.

2.3 Literature Review

2.3.1 Economic Impacts

It is estimated that over 45 million people particularly in developing countries are directly involved in artisanal smaller mining (World Bank, 2020). This makes the sector one of the largest employers within developing countries. Again, the livelihoods of 130 to 270 million people globally depend on artisanal mining (Girard et al., 2024). This mining sector has played a crucial role in eradication of poverty and become an important source of income for many people. It contributes insignificantly to the economy of the countries where formal employment opportunities are scarce and raise the standards of living for communities or people who are

living in absolute object poverty. This sector became an important economic activity in most rural areas of developing countries.

In Sub Saharan Africa, research indicates that over eight million people work directly in ASM, with more than 45 million relying on these miners for their livelihoods (Hilson & Gavi, 2016). Given the economic instability in most African states, artisanal and small-scale mining became an important source of income generation, which is vital for acceleration of economic growth and reduction of poverty. In Sub-Saharan Africa, artisanal and small-scale mining provided direct employment for millions of vulnerable people and serve as an important means of coping with unemployment (Kumah, Hilson & Machanichie, 2020). Since the rise of states, the continent's history has been shaped with artisanal and small-scale gold mining dominating economic activities. This reflects on the idea that, artisanal mining has been critical in addressing unemployment issues within the continent, and became an alternative for livelihoods diversification. The sector has also played a key role in many African countries by its contribution to export revenues, Gross Domestic Products (GDP), and government tax revenues (Maponga, 2010). This sector presents opportunities to people who are seeking quick economic gains. ASM empowers marginalized communities through income generation and job creation, thereby fostering economic stability among the vulnerable communities.

In Zimbabwe, the literature reviewed that the country is estimated to have about 500 000 Licensed Artisanal and Small-Scale Gold miners who are supporting roughly around 3 million dependents (Gutu & Angeline, 2017). Given the economic conditions within the country that is significantly deteriorating, people sought opportunities in artisanal mining as means to escape poverty and to cope with unemployment. Zimbabwe Miners Federation (2020) reported that, the

country is associated with 50 000 Licensed Artisanal and Small-Scale Gold Miners which contribute to mineral production within the country. As a formal economic activity, ASM became an easy alternative for people who are seeking sustainable economic gains and has the potential to stimulate economic growth. Literature review that, the sector's operations contribute significantly to national mineral production and economic stability. However, in as much as these activities and operations are important to local economies, there is need for efforts to maximize benefits and minimize the challenges associated with these mining activities.

2.3.2 Social Impacts

Despite the potential livelihood benefits, ASM sector is largely associated with social and environmental challenges for countries rich in these mineral resources (Corbetteetal, 2017). At a global level, artisanal small-scale mining is largely associated with mercury pollution, which is one of the most harmful pollutants to human health (United Nations Environmental Programme, 2018). Most artisanal small-scale miners have resorted to use of mercury for processing gold because of its easy availability and easy affordability. Artisanal mining also presents challenges on the agricultural sector through shift of labor from agriculture to ASM, land degradation and farm invasion (Hilson & Laing, 2017, Ofosu et al, 2020). This may result in low production of agricultural yield, which in turn affect food and nutrition, and the consequences will be felt through hunger, starvation and famine which may lead to inter and intra conflicts within the societies. Mercury can be inhaled, swallowed, or absorbed through the skin, bit the health consequences are usually not immediate (Agency for Toxic Substance and diseases Registry, 2024). ASM has been associated with child labor in most of developing countries with literature review that about 2 million children are involved in ASM activities (International Labor

Organization, 2004). Other challenges associated with ASM include issues to do with crime, drug abuse, prostitution, and conflicts (Yelpaala, 2005). This highlight that ASM has been acknowledged by global institutions to be associated with social challenges, as well as environmental challenges which affects community well-being, as their survival depends on a well thriving environment.

In Africa, the continent has been hit with a strong wave of social implications as a result of artisanal mining activities. The Intergovernmental Forum on Mining (IGF, 2017) states that, "Most occupational health and safety risks in Sub-Saharan Africa (SSA) are borne by women, due to the division of tasks between male and female miners". This reflects on the implications of mining activities towards the health of those directly engaged in these mining activities. Use of hazardous substances put the health of miners at risks through exposing them to mercury, zinc vapor, cyanide, and other acids (Obiri et al., 2010). Other studies have shown that, high rates of prostitution, crime, and sexually transmitted diseases like HIV/AIDs have been reported in many communities of African countries (Fisher, 2008). Again, ecosystem is largely threatened by artisanal mining activities. Mining pose significant threats to ecosystems including land degradation, pollution of streams and biodiversity (Djibril et al., 2017). LASM activities also threaten agriculture through invasion of farm lands by mining activities and shift of labor from agriculture to LASM. Mining and agriculture are the two large employers in Africa, the expansion of artisanal mining activities presents a shift of labor from agriculture to people pursue existence in ASM. This result in less production taking place in the agricultural sector, and consequently threatens food security. Therefore, artisanal mining activities have to be exercised with extra cautious.

In Zimbabwe, social implications of licensed artisanal and small-scale mining are a complex interplay of factors. ASM in the country is largely associated with conflicts and violence, with groups of violent gangs known as Mashurugwi, who are originated in the Midlands towns of Shurugwi and Zvishavane, where they initially asserted control over illegal mining operations through violent means (The Sunday Mail, 2018). Over time, they extended their influence to other regions across Zimbabwe, expanding their dominance in mining activities. These people often conflicted with local people over mining claims. Additionally, ASM activities have been cited as associated with land degradation through the use of explosives and abandoned open pits that are fall risks for humans and animals, and when filled with water a breeding ground for mosquito (Bakia, 2014 & Yelpaala, 2005). This shows the extent to which ASM activities can impact on local communities, threatening the overall well-being of local communities surrounding a mining site. As such, ASM activities afflicted local communities through exposure to diseases such as malaria. Regulation of legislative frameworks that govern the activities and operations of mining sectors by the government is crucial to address this pressing issue. This area of focus is frequently neglected; therefore, it also requires much attention in as much as the sustainability of the sector is concerned.

2.3.3 Strategies to Promote Sustainable Mining

Literature reviewed key strategies that can be used to promote sustainability of artisanal and small-scale mining. Effective regulatory systems should be outcome based and should aim at conserve natural resources, health and safety, skills development and transparent mineral trading (Mutemeri et al., 2016). The governments bear the responsibility to ratify some international instruments that aim at promoting environmentally friendly mining technologies such as the

Minamata convention on mercury which has a goal of decreasing and monitoring mercury emission (UNEP, 2009). Effective governance of licensed artisanal and small-scale mining is important in order to harness its benefits while promoting the environment and ensure social justice. Implementation of effective regulatory frameworks is however a challenge in most countries. Sustainable mining practices must integrate environmental conservation, respect for human rights, and the empowerment of local communities. By so doing, the mining sector will be in a position to flourish, increasing its benefits to the communities under which mining activities are being conducted.

2.4 Research Gap

Despite LASM's importance for livelihoods and poverty alleviation, its effects on communities surrounding mines like Botha are poorly understood. This study aims to address this knowledge gap by investigating the social and economic impacts of LASM to inform strategies to enhance sustainable mining practices that balance economic benefits with social and environmental responsibilities.

2.5 Summary

This literature review highlights the complex interplay between the economic benefits of licensed artisanal small-scale mining and the environmental and social challenges associated with such mining practices. Although ASM gained universal recognition as a significant source of livelihoods for a number of people mostly in developing countries due to its contribution towards national economies, the literature reviewed that its impacts on local communities necessitate the need to develop and implement effective governance frameworks that promote sustainable practices. Balancing the benefits and challenges is crucial to enhance the well-being

of artisanal miners as well as that of local communities surrounding the mining sites. The governance challenges in regulating LASM and ensuring sustainability remain underexplored in the context of specific regions, such as Bindura, Zimbabwe. The researches on how licensed artisanal and small-scale gold mining can be better integrated into broader policy frameworks that balance economic gains with environmental and social sustainability are lacking. This research seeks to fill these gaps by providing a detailed analysis of the social and economic impacts of licensed artisanal and small-scale gold mining in Bindura, Zimbabwe, and offering insights into strategies for promoting sustainability and equity of the mining practices.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a framework of the research methodology which was employed to investigate the social and economic impact associated with licensed artisanal and small-scale mining on local communities surrounding Botha mine which is in Bindura, Zimbabwe. It explicitly gives detailed description of the research philosophy, research design, sampling techniques, data analysis, and research ethics which was utilized by the research. These components work together to ensuring that the study's results are reliable, valid, and aligned with the research objectives.

3.2 Research Philosophy

Constructivism was adopted by this study on the social and economic impacts associated with licensed artisanal and small-scale mining on local communities surrounding Botha Mine which is located in Bindura, Zimbabwe. This research paradigm is built upon the idea that knowledge can be built through learning by experiences (Kalender, 2007). This approach recognizes that, reality is socially constructed. They also perceive the construction of knowledge through interactions that occur between people and their environments. Thus, learning does not just happen through traditional means of lectures, but rather when learners discover knowledge through experiments. The learning process is usually motivated by interest, and students should use critical thinking to create their own knowledge. This research paradigm acknowledges that, knowledge is not absolute, but is predetermined and influenced by the perspectives and experiences of participants who are involved in the research process. Therefore, the research creates room for acceptance of diverse truths in trying to understand the research phenomena.

3.3 Research Method

The research employed qualitative methodology in order to understand the social and economic impacts associated with licensed artisanal and small-scale mining on local communities surrounding Botha Mine in Bindura. Qualitative research is concerned with understanding people's experiences in a simple, easy and analytical way and seeks answers to research questions (Cleland, 2017). Qualitative research methodology yields the ability to provide contextual and complex descriptions of why and how people experience certain phenomena. This methodology is effective in obtaining specific information about behaviors, values, opinions and social contexts of particular populations. It provides information about the

behaviors, beliefs, opinions, emotions and relationships of individuals as opposed to providing numbers or quantification (Tscholl et al., 2019). Additionally, qualitative methods are also super-effective in identifying intangible factors, such as socioeconomic status, social norms, ethnicity, gender roles and religion. This methodology is flexible, it is most appropriate for this study because it allows for the collection and analysis of rich narrative data.

3.4 Research Design

This research study employed a case study research design to understand the social and economic impacts posed by licensed artisanal and small-scale mining to the local communities surrounding Botha Mine which is located in Bindura. This research design involves an investigation of a single event or situation within a specific time frame. It is mostly used to understand complex social issues (Zamamwe, 2015). A case study was suitable for this study because it allowed for an in-depth examination of the research phenomena, and provided rich narrative and context-specific data which aligns with the research topic that was being investigated. This research design necessitates a detailed exploration of the social and economic dynamics of licensed artisanal and small-scale mining, acknowledging macro-level effects of LASM and the micro-level experiences of individuals. By so doing, the research provided rich, context-specific insights which can contribute to a deeper understanding of the role of artisanal mining on enhancing local development.

3.5 Population

Defining population and selecting a sample are very important steps when conducting research. They are determinants which influence data collection and analysis ensuring research validity and reliability. Identify the population was crucial for understanding scope and the

boundaries of the research study. It was also crucial for selecting a sample that is representative, and to generalize the findings to the broader population, as well as to compare what other studies yield. The targeted population for this study comprised of individuals who are directly or indirectly affected by licensed license artisanal and small-scale gold mining within communities surrounding Botha Mine. These include miners, community leaders, residents of Aerodrome, Mupandenyama and Chiwaridzo, local government officials, and other stakeholders such as business owners or individuals who work in related industries.

3.6.1 Sampling Method

Non-probability sampling method was used to select participants for the study on the impacts of licensed artisanal and small-scale mining on local communities surrounding Botha Mine in Bindura. Sampling process is one of the most important parts of the research methodology through which accuracy and validity of the research findings are guaranteed (Suresh et al, 2011). Samples were used in research to study characteristics, behaviors, and trends within populations more efficiently and cost-effectively. Under this approach, there is no random selection of units (Taherdoost, 2016). Purposive sampling design was used for the selection of respondents. In purposive sampling, the participants were selected based on the judgment of the researcher who decides who will be most useful for the data required (Andrade, 2020). The research utilized purposive sampling to acquire certain information regarding groups or individuals that can best address the research objectives. Purposive sampling is also a cost-effective and time-efficient sampling method, as researchers can focus on recruiting participants who meet the criteria of interest, rather than selecting a random sample from the entire population. Samples were used in research to study characteristics, behaviors, and trends within

populations more efficiently and cost-effectively. This sampling method enabled a representative sample of households and key informants, thereby fostering an understanding of social and economic impacts of LASM in relation to the local communities surrounding Botha Mine.

3.6.2 Sample Size

For this research, a purposive sample of approximately 35 participants was conducted to gaining deep, meaningful insights from participants who have direct knowledge and experiences related to the social and economic impacts of LASM on local communities surrounding Botha Mine. Qualitative research typically relies on smaller samples to provide in-depth insights rather than large, generalized data. This sample size was considered sufficient to capture a range of perspectives and experiences from key stakeholders, including miners, local authorities, community leaders, and residents from the communities surrounding Botha Mine. The procedure for selecting participants involved identification and intentional selection of participants who were affected by mining activities carried out at Botha. Therefore, the selected sample size and procedure were appropriate to provide a thorough exploration of the impacts of ASM on local communities surrounding Botha Mine.

3.7 Methods of Data Collection

The research employed two data collection methods namely semi-structured interviews and observations. These are common methods frequently used to gather qualitative data (Palermo et al., 2019). Semi-structured interviews allow for an in-depth exploration of participants' perspectives and experiences and provided conducive environment for a better understanding of social and economic impacts related to licensed artisanal and small-scale mining activities. Observations on the other hand provided a contextual understanding of the

environment in which LASM is taking place and how it intersects with cultural traditions and practices of the community. These combined methods of data collection enabled the study to capture comprehensive, diverse perspectives of the impacts of licensed ASM on local communities surrounding Botha Mine.

3.8 Data Presentation

The research findings were presented in themes and patterns that emerged from semi-structured interviews and observations. The findings were presented in a narrative format through quotations and narrative description to enhance an understanding of the lived life of respondents, taking into picture stories, struggles, and breakthroughs. Visual information like pictures and tables were used to complement the qualitative data to facilitate simplification of complex qualitative research findings. The presentation of the data provides a clear understanding of the research phenomena. Therefore, data presentation was crucial for in-depth exploration of social and economic impacts of licensed artisanal and small-scale gold mining on local communities surrounding Botha Mine in Bindura.

3.9 Data Analysis

The data collected on the social and economic impacts of LASM on communities surrounding Botha Mine was analyzed using thematic analysis. Qualitative research is largely associated with a lot of data which was transcribed then coded manually (Houghton, et al. 2019; Zamawe, 2015). Research findings obtained through semi-structured interviews and observations was organized into themes. Themes were further analyzed to identify sub-themes. The researcher repeatedly reviewed and refined data and themes to ensure accuracy in terms of analysis. The thematic analysis allowed for a comprehensive understanding of the different ways ASM impacts

the community, including economic benefits such as job creation and income generation, as well as issues to do with environmental degradation and social disruptions.

3.10 Pilot Testing

Pilot testing was the initial step that was taken to assess the effectiveness of research instruments to see whether the data gathered align with objectives, and it was undertaken by a small group of participants. A small group of participants from the target population, particularly from a local community of Chiwaridzo was selected to test the interview guides. The purpose of conducting pilot testing was to figure out if the research instruments were effective or whether required to be refined in order to promote effectiveness. Additionally, pilot testing provided insights into the practicality of the data collection process, including the time that was needed for interviews. Moreover, unexpected challenges which emerge during this phase were properly addressed; ensuring that the final study of data is produces to promote credible results.

3.11 Validity and Reliability

Validity and reliability were used to for ensuring that the results obtained from the study were accurate and could be trusted. Validity determined whether the research findings was aligning with the research objectives which it tends to address, while reliability was crucial for ensuring replicability of the study. Data triangulation and member checking were employed to enhance validity and reliability of the research findings. Data triangulation was used to gather information obtained through semi-structured interviews and observations to verify the accuracy of data gathered and cross verification with a number of sources. Again, member checking was conducted with respondents to ensure validation of key findings. By so doing, the accuracy and trustworthy of the study was guaranteed.

3.12Ethical Considerations

Ethical standards were upheld throughout the course of data collection to ensure acquisition of information which was needed to answer the research objectives. This was done to ensure that data collection would not infringe the rights, dignity and well-being of the participants. Informed consent is one of the ethics which was upheld, as participants were told the purpose of the study and they agreed to participate willingly. Participants were informed about their rights to withdraw from the research anytime, as highlighted by Silverman (2016), who emphasizes the importance of transparent communication in maintaining ethical integrity in research. Confidentiality has been upheld to protect participants' personal information and for ensuring that their identity details were kept secure. Ethical considerations extended to data analysis and data presentation processes through avoiding misrepresentation of participants views, thereby enhancing the authenticity of research findings. Ethical standards were part and parcel of the research process to ensure that the research contributes to the body of knowledge on the impacts of licensed artisanal and small-scale gold mining on local communities surrounding Botha Mine in Bindura, as well as safeguarding the rights and well-being of individuals involved. This enhanced trust of the research process by the participants, as they understood that the research was not intended to cause any sort of harm to people who was involved.

3.13 Summary

This chapter outlined qualitative research methodology which was used to investigate the social and economic impacts of licensed artisanal and small-scale mining (LASM) on local communities surrounding Botha Mine in Bindura, Zimbabwe. Semi-structured interviews and observations were primarily methods of data collection utilized by this study. The research

adopted non-probability, purposive sampling design. Thematic analysis was used to identify patterns and themes. Data triangulation, member checking, and ethical considerations ensured validity, reliability, and accuracy of the research findings. The next chapter will present the study's findings for the subject matter.

CHAPTER 4

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents research findings on the impacts of licensed artisanal and small-scale gold mining on local communities surrounding Botha Mine which is located in Bindura, Zimbabwe. The data was gathered through semi-structured interviews and observations will be presented and analyzed to ensure an understanding of the research problem. It presents and analyzes patterns, themes and visual aids that emerged from the research findings. The research findings were organized to align with objectives of the research study. Key findings of the study were also discussed, and implications of the findings were clearly stated and results of the study has been interpreted. This chapter also acknowledged limitations of the study. The chapter concluded by offering a deeper understanding of the subject matter, situating research findings within broader debates, and suggests potential pathways for future research.

4.1. The demographic profile of participants

CHARACTERISTICS	CATEGORY	FREQUENCY	PERCENTAGE
AGE	(18-25)	6	17.14%
	(26-35)	13	37.14%
	(36 AND ABOVE)	16	45.71%
MARITAL STATUS	MARRIED	29	82.85%
	DIVORCED	2	5.71%

	SINGLE	4	11.42%
OCCUPATION	MINER	7	20%
	RESIDENT	20	57.14%
	TRADERS	8	22.85%
EDUCATION LEVEL	PRIMARY	3	8.57%
	SECONDARY	23	65.71%
	TERTIARY	9	25.71

Table 1.0

4.1.1 Distribution of Respondents by Age

The majority of the respondents were adults with a category age range of 36 years and above who constituted 45.71%, followed by middle-aged individuals with a category age range between 26-35 years which constituted about 37.14% of the total population of respondents. Finally, a smaller group of young adults which ranged between 18-25 years constituted 17.14% of the total population of respondents.

4.1.2 Distribution of Respondents by Marital status

The distribution of respondents by marital status shows that most of the respondents (82.85%) are married, which highlight dominance of married people in the sample size. In contrast, divorced respondents make up a relatively small percentage (5.71%), while single

respondents account for a minority (11.42%). Overall, the data suggests that married individuals are overrepresented in the sample.

4.1.3 Distribution of Respondents by Occupation

The distribution of respondents by occupation shows a diverse range of professions, with the majority of respondents which constitute 57.14% of the sample. This suggests that most respondents are community members who live in the nearby communities of Botha Mine. Traders constitute a significant proportion 22.85% of the respondents, indicating a notable presence of business owners or individuals involved in trading. Finally, miners constituted a smaller percentage 20% of the respondents, representing a minority of individuals directly engaged in mining activities.

4.1.4 Distribution of Respondents by Education Level.

Most of the respondents 65.71% have completed high school, having a secondary level education. About 25.71% of the total population of respondents have attended college. Only a small group which constitute 8.57% have completed their education at primary level.

4.2 Presentation of Data Findings

4.2.0 Impacts of LASM

4.2.1 Disruption of Family Structures and Livelihood Vulnerability.

Disruption of family structures and livelihood vulnerability is a significant theme that emerged from the research findings. Research findings yielded that, artisanal mining activities have negative impact on the lives of mining communities, as it causes widespread disruption to family structures and foster a sense of fear among residents. Artisanal miners have reported that

they work for long hours or for several days, straining family relationships and placing a burden on women to care for children alone. The frequent deaths and injuries that occur during the extraction process exacerbate this fear, leaving residents with a sense of anxiety. This situation is further complicated by the desperation and vulnerability of artisanal miners, who often prioritize their livelihoods over safety concerns due to a lack of alternative options. One artisanal miner stated that:

> *"We know the risks and the danger that is associated with artisanal and small-scale mining that at times tragic incidents seem to happen, but we have no other livelihoods option to depend on. A good father would rather sacrifice his life, than to see his children die of hunger. The death of children with hunger will haunt you."*

According to a respondent:

> *"The artisanal mining activities have turned our homes into a war zone, we are now living in constant fear of losing our loved ones, and the trauma of seeing dead bodies being retrieved from the mine pits is a permanent scar in our minds."*

Another respondent also said that:

> *"The desperation to earn a living has made us vulnerable to exploitation, we are forced to work long hours in dangerous conditions, and our lives are worth nothing to the mine owners, we are just statistics."*

The disruption of family structures and the risks associated with artisanal mining have severe implications for the human capital and financial capital of mining communities. Frequent accidents and injuries reduce the workforce's health, productivity, and ability to sustain a livelihood (Bakia, 2014; Yelpaala, 2005). This, in turn, erodes financial capital and creates further vulnerability, undermining long-term well-being and resilience.

4.2.2 Health issues

Health is a recurring theme that emerged from the research findings on the social and economic of artisanal mining on local communities surrounding Botha Mine. Artisanal miners highlighted the physical toll associated with mining activities including exposure to noise, dust, dangerous chemicals and explosives. Some community members reported concerns over diseases due to poor sanitation. Observations yielded that, the mining sector is ill equipped with only a few toilets which is not sufficient to accommodate the number of artisanal miners which makes the area prone to outbreak of diseases such as cholera, which end up afflicting the communities within the surroundings. Open pits also contribute to the spread of malaria, especially during the rainy season, leaving local communities vulnerable to diseases and straining already overwhelmed local health facilities. These health challenges have strained local health facilities, which are already struggling to adequately provide essential health care. As one respondent noted:

> *"Artisanal mining sector is like a trap, it promises economic empowerment, but at the same time pose significant health complications for both miners and communities within the surroundings. With a desire to seek quick economic gains, artisanal miners are driven into traps only to see*

themselves exposed to deaths, with underground shaft mining which is mostly associated with issues to do with mining collapse which may causes deaths and injuries".

Another respondent noted that:

"Diseases such as cholera are widespread given the scarcity of toilets at Botha and the adverse effects is always felt within nearby communities surrounding the mining sector".

A participant noted that:

"As a community member, I'm worried about the health implications of artisanal mining, the open pits are a haven for mosquitoes, and during the rainy season, the risk of malaria is high, we're already struggling to access basic healthcare, and this just adds to our woes."

The health problems associated with licensed artisanal and small-scale mining undermine the ability of miners and their communities to achieve sustainable livelihoods. According to the Sustainable Livelihoods Approach, good health is essential for achieving sustainable livelihoods. However, artisanal mining exposes miners to harmful substances like mercury, noise, dust, and chemicals, which can damage their health and wellbeing. The use of mercury in gold processing, as reported by the Agency for Toxic Substance and Diseases Registry (2024), is particularly hazardous, causing respiratory and kidney problems. By prioritizing economic gains over health and safety, artisanal miners compromise their human capital, reducing their productivity and

increasing economic instability. This, in turn, affects the long-term well-being and resilience of miners and their communities, hindering their ability to achieve sustainable livelihoods.

4.2.3 Changes in Gender Dynamics

Changes in gender dynamics emerged as a recurring theme in the study of social and economic impacts of LASM on local communities surrounding Botha Mine. Women participants acknowledged opportunities for advancing gender equality, provides a platform for women to assume traditionally male-dominated roles. Research findings showed that, despite traditional male dominance in the sector, increased women's participation is reshaping gender roles. However, LASM is also associated with exploitation and exposure of women to hazardous working conditions. A respondent emotionally shared:

> *"I wish if it was possible to turn the hands of time, trauma has made me paralyzed thinking about the death of my wife. Artisanal mining had truly claimed the life of my beloved wife. Flashes of memories bring tears to my eyes".*

A miner was quoted saying:

> *"I never thought I'd be able to work in the mine, but now I'm not only working, but also earning a decent income and supporting my family, it's empowering to know that as a woman I can now do a job that was previously reserved for men."*

Another miner also stated that:

> *"As women, we are no longer just limited to domestic work, but we are now contributing to the economy and providing for our families."*

A female responded stated that:

> *"As a woman, I've faced a challenge of being exposed to dangerous working conditions, but I've also seen how the sector can provide opportunities for women to be self-dependent."*

Changes in gender roles in the LASM sector have a big impact on sustainable livelihoods, especially when it comes to social connections and human well-being. When women take on new roles in artisanal mining, they can build stronger social networks, access more resources and opportunities, and improve their ability to contribute and benefit from sustainable livelihoods. However, if women don't have equal access to resources and rights, these changes can actually make them more vulnerable or reinforce existing gender inequalities, hence harming the community's overall well-being and resilience. This is supported by other studies, which have found that women's participation in artisanal mining can have both positive and negative effects, offering economic benefits but also exposing them to risks and exploitation (e.g., Agency for Toxic Substance and diseases Registry, 2024). This highlights the need for a better understanding of how gender dynamics affect sustainable livelihoods.

4.2.4 Social Unrest

Social unrest is also a dominant theme that emerged from the research findings on the socioeconomic impacts of licensed artisanal and small-scale mining on local communities surrounding Botha Mine. The study found that LASM is closely tied to drug and substance abuse,

which can lead to violent behavior, increased domestic violence, and higher crime rates, including theft and disputes over mining claims. Furthermore, the ASM activities have contributed to a rise in prostitution, resulting in moral decay within the community. A participant shared that:

> *"If one wants to taste the implications of artisanal mining, go to Chipadze. There are areas which are home to prostitution. Touch-line, is a label that was created to define such immoral behaviors. Money and evil are truly inseparable."*

Another respondent also noted that:

> *"The rise of artisanal mining in our community has brought with it a wave of social problems, including drug and substance abuse, prostitution, and violent behavior, it's like our community is being torn apart."*

A Participant in the local community stated that:

> *"The artisanal mining sector has brought in a lot of outsiders, and with them, a lot of problems, including drug dealers and prostitutes, it's like our community is being overrun, and we're powerless to stop it."*

The linkage between licensed artisanal and small-scale mining (LASM) and social unrest has significant implications for the Sustainable Livelihoods Approach. The rise in prostitution, crime, and sexually transmitted diseases like HIV/AIDS, as reported in many African communities (Fisher, 2008), undermines the human capital aspect of sustainable livelihoods. Poor health and social insecurity resulting from these issues reduce individuals' ability to

participate in productive activities, thereby limiting their capacity to achieve long-term, sustainable livelihoods. Furthermore, the erosion of social capital, as evident in the moral decay and breakdown of community values, exacerbates the challenges of achieving sustainable livelihoods. This underscores the need for a holistic approach that addresses the social and economic factors influencing the livelihoods of individuals and communities engaged in LASM.

4.2.5 Environmental Deterioration

Environmental deterioration is also a major theme that emerged from the data that was gathered in relation to the research problem that was being investigated. The findings reviewed that, these mining activities is associated with toxic pollutants like mercury which can contaminate soil, water, and air in the event of not being properly disposed. This has severe effects on agricultural productivity, as degraded farm lands are difficult to cultivate. Pollutants such as mercury reduce soil fertility which can lead to poor crop yields, which in turn threatens food security in the affected areas. One interviewee shared that:

> *"It is undeniable that licensed artisanal and small-scale mining is an enemy to a healthy and thriving environment. Mining belt sometimes extends to farm lands which can end up being incorporated into the larger expanding mining sector. In most cases, poor disposal of waste materials used for mining especially mercury can distort soil composition in farm lands, and can affect crop produce."*

Another respondent noted that:

"The artisanal mining activities have turned our once fertile lands into barren wastelands, the mercury and other pollutants have contaminated our soil and water, making it impossible to farm, it's a disaster."

Another participant also stated that:

"The environmental damage caused by artisanal mining is irreparable, the pollution of our water sources, the destruction of our forests, and the contamination of our soil, it's a catastrophe that will haunt us for generations to come."

This resonates well with previous studies which have acknowledged that, unproper disposal of waste materials that contain chemicals such as cyanide can reduce soil fertility, in turn affects agriculture (Hilson & Laing, 2017, Ofosu et al, 2020). The degradation of natural capital, particularly soil fertility, undermines agricultural productivity and threatens the well-being of current and future generations, hence threatening sustainable livelihoods.

4.3 Economic Impacts

4.3.1 Employment Creation

Employment creation is one of the most recurring themes from semi-structured interviews and observations. Licensed artisanal and small-scale gold mining has garnered universal acceptance from local communities surrounding Botha Mine, namely Chiwaridzo, Chipadze and Mupandenyama. The sector has been recognized as one of the large employers in Bindura, given the scarcity of job opportunities at both local and national level, and became a

source of livelihoods for artisanal miners and their dependents. One respondent was quoted saying:

> *"We are very thrilled to be part and parcel of this mining sector, the legal nature of the sector provides local communities with sustainable job opportunities. It offers a degree* of *security, which allows us to work without fear of constant harassment or eviction by authorities."*

A miner was quoted saying:

> *"Before I started mining, I was unemployed for years. But now, I'm earning a decent income, and I'm able to support my wife and kids."*

Another miner stated that:

> *"The mine has been a lifesaver for me and my family. I was struggling to make ends meet, but now I have a steady income, and we're able to afford basic necessities like food and shelter."*

This phrase highlights the significance of LASM in Bindura as a source of employment. This resonates with existing literature which has presented that in Sub-Saharan Africa, artisanal and small-scale mining provided direct employment for millions of vulnerable people and serve as an important means of coping with unemployment (Kumah, Hilson & Machanichie, 2020). The significance of LASM in Bindura as a source of employment align with Sustainable Livelihoods Framework (SLF) by demonstrating how artisanal mining provides vulnerable populations with access to key livelihood assets such as income, thereby enhancing the ability of local communities to cope with economic hardships.

4.3.2 Poverty Reduction

Another pervasive theme which emerged from the research findings is poverty reduction. Respondents acknowledged that LASM can enhance a stable source of income which is key for poverty reduction. This in turn can influence a rise in the standards of living for artisanal miners and their families as they would be able to afford basic needs. LASM also empowers the weaker members of the society particularly women and youth by providing them with economic opportunities. One respondent was quoted saying:

> *"We used to struggle to earn a living, we couldn't afford basic needs. Poverty was claiming certain heights. My dreams were shuttered, l was vulnerable until l told myself that, l have to make a try to seek for relief in mining. That's when my story has changed."*

Another respondent was also quoted saying:

> *"Since I started working in the mine, I've been able to provide basic needs for my family, we now afford to have food on the table, and my children are now going to school, it's a huge relief."*

A male miner stated that:

> *"Before I started working in the mine, I was struggling to find a job, but now I have a steady income, and I can even hire other youth to work with me, it's a great feeling to be able to provide for myself and others."*

This phrase highlights the extent of poverty alleviation which came as a result of abundance of the mining sector within the District of Bindura at large. This theme is related to a

macro overview of LASM which states that, the livelihoods of 130 to 270 million people globally depend on artisanal mining (Girard et al., 2024). This is linked to the basic principle of Sustainable Livelihoods Approach which emphasizes diversity of livelihood assets to enhance the well-being of local communities. In this case, the existence of Botha Mine created opportunities for local communities to escape a vicious cycle of poverty.

4.4.3 Development of Local Business

Development of local businesses is also a recurring theme from the data gathered through interviews and observations. Licensed artisanal and small-scale mining has been recognized by participants on the bases of influencing entrepreneurship. The influx of miners has led to the establishment of various local enterprises, including food outlets, clothing shops, and transportation services. This diversification of economic activities has created a ripple effect, stimulating economic growth in local communities surrounding Botha Mine. One respondent was quoted saying:

> *"Botha Mine has presented an opportunity for many people who live in the nearby communities, some are engaged in small scale retailing, some are into vending, and others are selling perishables at Botha. Even if one goes to any local community, the evidence is clear, businesses are flourishing."*

A respondent stated that:

> *"With this mining sector, I've been able to open my own food stall, and business is booming. It's amazing to see how the mining activity has created opportunities for entrepreneurs like me."*

Another respondent also stated that:

> *"I used to work as a laborer, but now I own my own transportation business, thanks to the mining activity. I transport miners and goods to and from the mine, and it's been a game-changer for me and my family."*

The development of local businesses as a result of artisanal mining activities aligns with the financial capital and social capital components of the Sustainable Livelihoods Approach. As mining creates business opportunities, such as services, trade, or processing related to mining, it can strengthen the local economy and improve income generation, enhancing financial stability. Additionally, local businesses foster stronger community ties and networks, contributing to social capital by increasing collaboration, support, and collective resilience within the community, thus promoting more sustainable livelihoods.

4.3.4 Revenue Generation

Revenue generation for local authorities is a recurring theme that has emerged from the research findings. The research yielded that, taxes and fees collected from licensed mining operations contribute to local government revenues, which can be directed towards community development projects such as infrastructure improvements and education. However, the respondents questioned lack of transparency and accountability in relation to how these funds are used, raising concerns over equitable distribution of resources. One participant in Mupandenyama was quoted saying:

"The good part about licensed artisanal and small-scale mining lies on income generation for local authorities through taxes, which foster local development"

A male respondent in Chiwaridzo said that:

"As a resident of Chiwaridzo, I'm glad that the licensed mining operations are generating revenue for our local authority. However, I wish they would be more transparent about how the funds are being used. We need to see tangible development projects in our community." - Male respondent, age 42, Chiwaridzo

A female respondent in Chipadze stated that:

"I've heard that the local authority collects a significant amount of taxes and fees from the mining operations. But as a local resident, I don't see the benefits. Our roads are still in bad condition, and our schools lack basic resources. Where is the money going?"

A female respondent in Mupandenyama said that:

"The mining sector is a significant contributor to our local economy, and we appreciate the revenue that is being generated. However, we need more accountability from our local leaders. We need to know how these funds are being allocated and what development projects are being prioritized."

A male respondent in Mupandenyama stated that:

"I'm not convinced that the revenue generated from mining is benefiting our community equally. Some areas seem to be getting more attention than others. We need a more transparent and equitable distribution of resources."

These quotations were giving relevance to LASM for its contribution to generation of revenue for the local authorities, and respondents expressed dissatisfaction with how these resources were being utilized. This resonates with existing literature with scholars argue that, licensed artisanal and small-scale mining sector has also played a key role in many African countries by its contribution to Gross Domestic Products (GDP), and government tax revenues (Maponga, 2010). This is linked with Sustainable Livelihoods Theory by demonstrating how the sector can create broader economic benefits that enhance national and community well-being. The generation of income and resources through LASM supports not only individual livelihoods but also contributes to local and national economic stability and development.

4.5.5 Financial Constraints

A recurring theme in the data was the limited access to capital and financing for artisanal miners. Although ASM provides essential economic opportunities, many participants expressed a concern over accessing financial resources needed to improve their operations. Local miners have reported a general lack capacity to buy modern equipment such as compressor, drilling machines due to lack of funding. Artisanal miners seemed agitated with inability to access financial services such as loans. Some miners also cited the lack of technical knowledge and

training as barriers to improve their productivity and economic outcomes. One artisanal miner was quoted saying:

> *"Artisanal mining is a sector with potential to develop, but this is largely undermined by resource curse"*

A male artisanal miner was quoted saying that:

> *"I've been mining for years, but I still use traditional methods because I don't have the money to buy modern equipment. I've tried to get a loan from the bank, but they won't give me one because I don't have collateral security."*

A female artisanal miner who lives in Chipadze stated that:

> *"It's frustrating because I know that with the right equipment, I could increase my productivity and earnings. But I just can't afford to buy the machines I need. It feels like I'm stuck in a rut."*

Financial constraints in artisanal mining relate to the financial capital component of Sustainable Livelihoods Approach by limiting miners' access to the resources needed for efficient and safe mining practices, such as equipment, technology, and healthcare. These challenges hinder the ability of local communities to invest in long-term livelihoods which makes it difficult for them to do away with a vicious cycle of poverty in the long run.

4.4 Ways to Make LASM more Sustainable

4.4.1 Environmental Management

Environmental Management is a dominant theme that emerged from the research findings on the impacts LASM on local communities surrounding Botha Mine. Participants cited the need for better management of waste, and proper disposal of waste materials to prevent pollution. There is need for the mining officials to develop and implement plans for responsible mining closure including rehabilitation and post mining land use. Several respondents suggested the introduction of environmentally friendly mining methods, including the use of safer processing techniques that reduce reliance on hazardous chemicals. Sustainable mining practices such as the use of cyanide-free gold recovery methods and enforcement of environmental regulations, was seen as essential for reducing environmental degradation associated with mining activities. A participant was quoted sayings:

> *"Local authorities have a big obligation to develop a robust framework to ensure environmentally friendly mining methods and proper disposal of waste materials"*

Another participant said that:

> *"I'm worried about the long-term impact of mining on our environment. We need to make sure that the mining officials have a plan in place for rehabilitation and post-mining land use."*

Another respondent also said that:

"The government needs to enforce environmental regulations more strictly. We can't just let the mining companies do as they please and destroy our environment."

Environmental management in artisanal mining relates to the natural capital component of the Sustainable Livelihoods Approach, as effective management of natural resources ensures the sustainability of the environment and preserves vital resources such as land, water, and soil quality. By mitigating environmental degradation, such as soil erosion, water pollution, and deforestation, agricultural activities may become productive and significantly result in food security and a health environment for generations to come.

4.4.2 Improved Access to Technology and Capacity Building

Another significant theme was the need for improved access to technical training and capacity-building. Respondents acknowledged that, many challenges faced by miners is due to lack of knowledge. Several miners acknowledged that, most people who work at the mining sector were not adequately capacitated which makes them vulnerable to danger. Tools and methods of mining require improvement to enhance safety of those involved in the extraction process. One participant during interviews was quoted saying:

"Mining technologies require improvement to avoid a culture of accidents, and miners should be adequately trained to reduce problems that come as a result of lacking skull and knowledge"

A miner said that:

"If we had access to technical training, we could learn how to extract minerals more efficiently and safely. It would make a huge difference in our operations."

Another respondent also said that:

"I think regular training sessions would help us stay up-to-date with the latest mining techniques and technologies. It would make our work more sustainable."

According to a male artisanal miner:

"If we had access to modern equipment and technology, we could reduce our costs and increase our productivity. It would make our mining operations more sustainable and profitable."

Improved access to technology in artisanal mining activities directly relates to the human capital and financial capital components of the Sustainable Livelihoods Approach. Adopting a more efficient and safe technologies will enable miners to be productive as well as reducing health and safety issues which can necessitate financial stability. Access to technology can enhance skills development for miners and can boost their human capital, and reducing dependence on hazardous practices thereby ensuring long-term economic well-being.

4.4.3 Community Engagement

Community engagement is also a recurring theme in enhancing sustainability and equity of the mining sector to local communities. Effective community engagement was seen as key in ensuring that the benefits associated with LASM are shared equally among stakeholders, while

mitigating the negative social and environmental effects. This can be done through ensuring transparent and inclusive relationships between miners, local authorities, and communities through regular dialogue, capacity building, and participatory decision-making processes. One respondent was quoted saying:

> *"Community engagement is one of the eminent ways to promote sustainability and equity of the mining sector. It helps build trust between mining companies, governments, and local communities, which is essential for ensuring the long-term sustainability of mining operations. "*

Another respondent said that:

> *"We need to be involved in the decision-making process when it comes to mining in our community. We need to know what's going on and have a say in how the benefits are shared."*

Another participant also said that:

> *"Regular dialogue between miners, local authorities, and communities is crucial. We need to be able to discuss our concerns and find solutions that work for everyone."*

Community engagement in artisanal mining activities relates to the social capital component of the Sustainable Livelihoods Approach by fostering collaboration, trust, and collective action among community members. When communities are actively involved in decision-making processes, such as implementing safe mining practices,

managing resources, and addressing social and environmental impacts, it strengthens social networks and creates a shared sense of ownership and responsibility. This collective effort enhances resilience, improves the sustainability of mining activities, and ensures that the benefits of mining are more widely distributed, ultimately supporting long-term, sustainable livelihoods for all community members.

4.4 Summary

Research findings have yielded that, LASM is associated with social and economic impacts on local communities surrounding Botha Mine which is located in Bindura, Zimbabwe. Social impacts include health issues, environmental degradation, social unrest, change in gender roles, breakdown of family structures and increased social interactions. Economic opportunities depicted by the research findings include employment creation, poverty reduction, raise standards of living, development of local businesses, and generation of income for local authorities. Research has also found that, community engagement, reform of legal frameworks and environmental management will help to ensure sustainability of licensed artisanal and small-scale mining on local communities surrounding Botha Mine.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This is the final stage for research project which seeks to summarize the provisions of the first chapter to the fourth one, giving a description of what is contained in each chapter. Conclusions drawn from the research findings will be clearly stated. It will further give some recommendations that can be used to address the research problem. The chapter also offer areas for further research, emphasizing the need for alternative means to promote sustainability and equity of licensed artisanal and small-scale mining on local communities surrounding Botha Mine. Finally, a reference list will be presented to appreciate in-text sources consulted during the course of the research.

5.2 Summary

Chapter one introduced the research study, providing overview of the context and relevance of investigating the socio-economic impacts associated with licensed artisanal and small-scale mining on local communities surrounding Botha Mine which is found in Bindura. The study was influenced by the assumption that LASM is associated with a myriad of positive and negative effects to the community which require attention, and if the study was to be carried out to success, it could benefit local communities, government, and policy makers. This chapter provided a solid foundation rock for the subsequent chapter.

Chapter two reviewed literature that was written in relation to the impacts associated licensed artisanal and small-scale mining. The already existing body of knowledge has shown that a lot has been written, LASM is not a new phenomenon. Scholars wrote about the research problem at a micro and macro-level acknowledging the economic opportunities, environmental and social problems associated with this mining sector. Literature review provided lens for this research to build on Sustainable Livelihoods Approach as a theoretical framework that will best guide the study. This chapter laid foundation base for the subsequent chapter.

Chapter 3 outlined qualitative research methodology which was used to investigate the social and economic impacts of licensed artisanal and small-scale mining (ASM) on local communities surrounding Botha Mine in Bindura, Zimbabwe. Constructivist provided a philosophical foundation for qualitative research methodology. A case study research design was used to investigate the research phenomena. Purposive sampling was used for selecting a sample of 35 participants while, semi-structured interviews and observations were used for data collection. Patterns, themes, diagrams, and visual aids were used for data presentation, and thematic analysis was used for analysis of research findings. Data triangulation and member checking enhanced validity and reliability of the research findings. Research was carried out in adherence to ethical standards.

Chapter four presented research findings on the investigative research carried out at local communities and at Botha mine to understand social and economic impacts of licensed artisanal and small-scale mining on local communities. The research has

depicted that, LASM is largely associated with employment creation, poverty reduction, revenue generation and development. However, the research findings have also highlighted social problems such as destruction of family structures, health issues, pollution, environmental degradation. The research findings also yielded that, capacity building, regulatory frameworks and community engagement can help to reduce the negative effects of ASM while promoting sustainability and equity of the mining sector.

Chapter five, discus the implications of the study's findings on the social and economic impacts associated with licensed artisanal and small-scale mining on local communities surrounding Botha Mine which is found in Bindura, Zimbabwe. The chapter also provides conclusions drawn from the research findings, and suggests recommendations to policymakers and the government to facilitate formulation of policies that best addresses the social and economic challenges associated with licensed artisanal and small-scale mining on local communities surrounding Botha Mine, enhancing sustainability and equity of the sector for local communities.

5.3 Conclusions

Being guided by research questions, conclusions were made from the findings.

5.3.1 What are the social impacts of licensed artisanal and small-scale mining on local communities surrounding Botha mine?

The research study has found that, licensed artisanal and small-scale gold mining is associated with a myriad of social impacts. The research findings have depicted LASM to be linked with destruction of family structures, as people who work

within the sector use poor extraction methods which expose them to accidents. Additionally, LASM activities is linked to serious health issues due to the use of hazardous chemicals which expose those involved in the extraction process to danger, and the industry is also ill-equipped with only a few toilets which makes the area prone to diseases such as cholera which end up afflicting the nearby communities. Furthermore, LASM has witnessed a shift in gender roles, as seen by an increase in the number of female workers, which highlight women empowerment for local communities surrounding Botha Mine. These mining activities are also greatly linked with social unrest, and environmental degradation that presents an adverse impact on local communities. Therefore, LASM is largely associated with negative social effects on local communities.

5.3.2 What are the economic benefits and challenges posed by licensed artisanal and small-scale mining on local communities surrounding Botha mine in Bindura?

The research study has found that licensed artisanal and small-scale gold mining is associated with economic opportunities for local communities surrounding Botha Mine. Economic opportunities manifest in the form of employment creation, poverty reduction, and improved standards of living. The diversification of economic activities reduce vulnerability within local communities. Furthermore, LASM is also linked with revenue generation for local authorities, which can prompt development within local communities. However, financial constraints are widespread among artisanal miners which hinder their ability to access modern equipment. In this regard, LASM plays a

pivotal role in shaping the well-being of local communities surrounding Botha Mine in Bindura.

5.3.3 How can licensed artisanal and small-scale mining be made more sustainable and equitable for local communities?

The research has found that, environmental management is crucial for sustainability of the mining sector. Botha mine needs to ensure improvement in terms of waste management, and the sector officials should monitor proper disposal of waste materials. The research has also found that, the sector can be made sustainable and equitable for local communities through capacity building which is crucial for reduction of accidents that stems from lack of knowledge during the extraction process. Finally, community engagement was also emphasized in the data findings to encourage mining companies to adopt socially responsible practices, and also enhance participation of local communities in decision-making processes, thereby ensuring that their concerns, needs and interests are taken into account.

5.4 Recommendation

- **Improve Regulation and Enforcement**

There is need to strengthen regulations and enforcement mechanisms to address the negative effects associated with licensed artisanal and small-scale mining. The environmental management bodies should ensure that mining companies comply with environmental and social standards.

- **Increase Community Engagement and Participation**

There is need to ensure community engagement and participation in decision-making processes to ensure that the needs and concerns of local communities are taken into account. This includes providing fair compensation and benefits to affected communities.

- **Promote Sustainable Mining Practices**

The mining sector should adopt sustainable mining practices, such as environmental impact assessments and rehabilitation of mined lands.

- **Support Local Economic Development**

Supporting local economic development initiatives, such as training and capacity-building programs for local entrepreneurs, can help stimulate economic growth and reduce over reliance on mining for livelihoods by local communities.

- **Capacity-building**

Providing capacity-building programs for artisanal and small-scale miners, and local communities help ensure that miners have the necessary skills and knowledge to manage the impacts of mining. This includes training on sustainable mining practices, environmental management, health and safety, and business and entrepreneurship skills.

5.5 Areas for Further Studies

- **Impacts of Environmental Degradation on Community Health**

Future studies can investigate health related issues which came as a result of environmental degradation such as water pollution, air pollution as a result of mining activities

- **Sustainability and Livelihood Diversification**

Research can investigate how licensed small-scale mining contributes to livelihood diversification for local communities.

- **Effectiveness of Government Policies and Regulations**

Future studies can be directed towards assessing the effectiveness of governmental policies and regulatory frameworks in mitigating the negative effects associated with artisanal mining on environment.

- **Impacts of Artisanal Mining on Agricultural Production**

Future research can be directed towards assessing how artisanal mining activities impact on agricultural yield and food security.

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APENDIX 1

APPENDIX 2

Interview Guide

Biographical Data (Tick where applicable).

	18 - 25	26 - 36	36 – 55	56 – 64
Age				
	Married	Single	Divorced	Widowed

Marital Status				
	No School	Primary	Secondary	Tertiary
Level of Education				
	Formally Employed	Unemployed	Business Owner	Part-time Worker
Status of Employment				

Interview Questions

The following are the interview questions for the research on the socio-economic impacts of licensed artisanal small-scale mining (LASM) in Bindura, particularly around Botha mine. These questions are designed to give detailed responses from miners, local community members, and stakeholders.

Interview Questions for Miners

1. Can you tell me about your background and how you became involved in artisanal small-scale mining?

2. How long have you been working in this field, particularly at Botha mine?

3. What economic benefits have you experienced since starting work at Botha mine?

4. How does your income from mining compare to other potential sources of income in your community?

5. Have you faced any financial challenges or barriers in your mining activities?

6. How has your work in mining affected your relationships with family and friends?

7. Are there any community initiatives or support systems in place for miners? If so, how effective are they?

8. Have you faced any social conflicts related to your mining activities? Can you provide examples?

9. What are some health and safety risks you face while mining?

10. Have you received any training on safety practices? If yes, how helpful was it?

11. What environmental impacts have you observed as a result of mining activities in your area?

12. How do you think mining practices could be improved to reduce environmental damage?

Interview Questions for Local Community Members

1. How has the presence of Botha mine affected your community?

2. What changes have you observed in the socio-economic conditions of your community due to mining activities?

3. How do you perceive the economic impact of mining on local businesses and employment?

4. Are there any positive or negative effects on local markets and prices due to mining?

5. Have there been any changes in social cohesion or community relationships since mining began?

6. Are there any concerns about displacement or changes in land use due to mining activities?

7. Have you noticed any health issues in the community that you believe are linked to mining activities?

8. What measures do you think should be implemented to improve health and safety for community members?

9. How has mining affected the local environment, including water sources and land?

10. What suggestions do you have for improving environmental practices in the mining sector?

Interview Questions for Stakeholders (e.g., NGOs, Government Officials)

1. What is your role in relation to artisanal small-scale mining in Bindura?

2. How do you perceive the significance of LASM for the local economy and community development?

3. What policies or regulations are currently in place to govern artisanal mining in Zimbabwe?

4. Are there any gaps or challenges in the existing regulatory framework that you believe need to be addressed?

5. What support do you provide to local miners or communities to enhance sustainable mining practices?

6. How do you engage with local communities to address their concerns related to mining?

7. What initiatives or programs are being implemented to promote sustainable and equitable mining practices?

8. How do you measure the success of these initiatives?

9. In your opinion, what are the most pressing issues facing licensed artisanal small-scale mining in Bindura?

10. What recommendations do you have for improving the socio-economic impacts of mining on local communities?