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ASSESSING THE IMPACT OF ARTISANAL MINING ON THE WELL-BEING OF CHILDREN IN BINDURA DISTRICT

By:

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE BACHELOR OF SCIENCE HONOURS DEGREE IN DEVELOPMENT STUDIES

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Declaration

I, Adrian Takudzwa Madzima, declare that this dissertation is my own original work and has not been submitted for any degree or examination at any other university or institution. All sources used have been acknowledged and appropriately cited.

Signature:  **Date: 20/05/2026**

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I, Mrs P. Chinyanganya, certify that this dissertation was prepared under my supervision and that it is submitted with my approval.

Signed:  **Date: 28/05/2026**

Mrs P. Chinyanganya (Supervisor)

Dedication

This dissertation is dedicated to my family for their unwavering support, encouragement and sacrifices throughout my academic journey. Your guidance, patience and motivation inspired me to persevere throughout this study.

I also dedicate this work to the children of Bindura District, whose resilience and courage in the face of hardship inspired every page of this work

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Abstract

The study assessed the impact of artisanal mining on the well-being of children in Bindura District, Zimbabwe, with a particular focus on their health, education, and psychosocial well-being. The research was motivated by the rapid growth of artisanal and small-scale mining activities and increasing concerns over children's exposure to hazardous mining environments. The study adopted a mixed-methods research design, combining quantitative and qualitative approaches. Data were collected through questionnaires, interviews, focus group discussions, and observations from children, parents or guardians, teachers, health workers, social workers, and community leaders in selected mining communities. A sample of 79 participants was selected using purposive and stratified random sampling techniques. Quantitative data were analysed using descriptive statistics, while qualitative data were analysed through thematic analysis. The findings revealed that artisanal mining negatively affects children's well-being through exposure to respiratory infections, injuries, unsafe environments, school absenteeism, poor academic performance, emotional stress, and exposure to violence and substance abuse. The study further established that poverty, unemployment, lack of alternative livelihood opportunities, and weak enforcement of child protection laws are major factors contributing to children's exposure to mining activities. Households and communities attempt to cope through promoting school attendance, livelihood diversification, and awareness campaigns, although these strategies are limited by economic hardships. The study concluded that despite its contribution to household livelihoods, artisanal mining poses significant threats to children's overall well-being in Bindura District. The study recommends strengthening child protection monitoring, improving educational support programmes, enhancing access to health services, and promoting alternative livelihood opportunities in mining communities.

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List of Acronyms

ASM	Artisanal and Small-Scale Mining
BEAM	Basic Education Assistance Module
BUSE	Bindura University of Science Education
CRBA	Child Rights-Based Approach
CRC	Convention on the Rights of the Child
DAPP	Development Aid from People to People
DRC	Democratic Republic of the Congo
FGD	Focus Group Discussion
ILO	International Labour Organization
NGO	Non-Governmental Organization
OVC	Orphans and Vulnerable Children
SDG	Sustainable Development Goal
SLF	Sustainable Livelihoods Framework
UNCRC	United Nations Convention on the Rights of the Child
UNICEF	United Nations Children's Fund
WHO	World Health Organization
ZMF	Zimbabwe Miners Federation

Approval Form

The undersigned confirm that they have read and recommended the project titled: Assessing the impact of artisanal mining on the well-being of children in Bindura District. This is a partial fulfilment of the Bachelor of Science Honours Degree in Development Studies at Bindura University of Science Education. The project was submitted by Adrian Takudzwa Madzima, student number B222165B.

Mrs P. Chinyanganya (Supervisor) signature: 

Chairman's Signature: 

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Chapter 1

1.0 Introduction

This opening chapter sets the scene by laying out a comprehensive overview of the study, including a broad contextual research background, problem statement, research aim, research goals, research questions, assumptions, significance, limitations, and delimitations. Additionally, the chapter concludes by defining key terms and summarizing the main points discussed. Key terms are defined so that the analytical vocabulary remains consistent throughout, and the chapter closes with a roadmap of the dissertation's five-chapter structure.

1.2 Background of the study

Child well-being is something far more complex than the mere absence of illness or hunger (Underdown, 2006). Child wellness is a comprehensive view of the child's life and development, physical and mental health, schooling, safety and meeting basic needs. According to Clark et al. (2020), child well-being is achieved when children are safe, educated, protected from harm, and allowed to reach their full potential in a nurturing environment. In mining communities, child labor, exposure to toxins, and limited access to healthcare and education can all negatively affect children's well-being. Artisanal mining is small-scale, informal mining for ores, gemstones, or alluvial deposits, conducted with basic manual tools and minimal techniques, without formal licenses and with little financial investment, as articulated by Eniowo (2022). It is generally conducted by individuals, families, or small communities as a source of livelihood. Artisanal and small-scale mining is characteristically low in productivity, minimally mechanized, and frequently lacking proper occupational safety standards.

The World Bank (2020) estimates that roughly 40 million people worldwide depend on artisanal and small-scale mining (ASM) as their primary livelihood, with a further 150 million living in households that rely on it indirectly. It is especially common in developing nations in Asia, Africa and Latin America, where formal employment opportunities are scarce and communities mostly depend on natural resources for survival. Artisanal mining is often linked to adverse social and environmental consequences, such as deforestation, land degradation and hazardous working conditions, despite its economic importance. The participation of minors in mining operations is a significant issue in many artisanal mining areas. Considering mining exposes workers to dust, mercury and hazardous excavation conditions, the International Labour Organisation (ILO) ranks

mining among the most hazardous types of child labour. Children frequently participate in activities that significantly compromise their physical and mental development, such as panning, crushing and carrying ore. Globally, it is estimated that over one million children participate in mining-related work and the countries most affected are the Democratic Republic of Congo, Peru, and the Philippines, which are also among the world's most mineral-rich (ILO, 2021). The United Nations Convention on the Rights of the Child (UNCRC) frames these circumstances as violations of children's rights to health, education, and protection from exploitation.

In Sub-Saharan Africa, the problem has intensified considerably over the past two decades due to rising gold prices, poverty and limited access to official work. Kpokro (2025) traces this escalation to a convergence of rising global commodity prices, deep structural poverty, and shrinking formal employment across countries such as Ghana, Tanzania, and the DRC. This growth has significantly impacted the wellness of children. According to Hilson (2010), it is estimated that minors make up more than 30% of artisanal miners in Ghana. Due to the financial demands of mining households, many of these children work long hours being exposed to toxic substances and are at risk of dropping out of school. Dietler, et al. (2021) state that similar patterns have been seen in Southern Africa, where children in mining villages frequently have less access to safe housing, healthcare and education. Children's vulnerability is increased by insufficient social protection systems, a lack of effective policy enforcement and a reliance on mining for economic gain. Families are further forced into precarious survival tactics that depend on the labour contributions of children as a result of mining activities destroying agricultural livelihoods. The region's artisanal mining industry contributes to disproportionate negative consequences for children and it is a complex relationship between social vulnerability and economic opportunity.

Small-scale and artisanal mining has emerged as one of Zimbabwe's fastest-growing informal industries, especially in the aftermath of the early 2000s economic downturn. Over 500,000 artisanal miners are thought to work throughout the nation, producing substantial amounts of gold and supporting rural communities (Chirisa et al.,2021). The industry is still mostly unregulated, however, with no institutional control and few workplace safety regulations. Mashonaland Central Province's Bindura District is one of Zimbabwe's main gold-producing areas. The district's abundant mineral reserves, especially in places like Shamva and Mazowe, have drawn a lot of artisanal miners. Local households now have more ways to make money thanks to artisanal

mining, although it has also brought about several social problems such as child labour, absenteeism from school, exposure to pollution and health risks. In mining towns, children frequently work side by side with adults, helping to haul and wash ore or they are left alone at home while their parents work long shifts at the mine. Furthermore, the increase in mining operations has put a burden on the community's social services and infrastructure. Overcrowding and low attendance plague schools in mining communities and local clinics report an increase in childhood respiratory illnesses and hunger. Deforestation and mercury usage contribute to environmental degradation, which further affects children's health by contaminating water supplies and creating hazardous living situations. Despite the increasing significance of these issues, few empirical studies have been done on the effects of Bindura's artisanal mining activities towards the well-being of children.

1.3 Statement of the problem

In Zimbabwe, artisanal and small-scale mining (ASM) has become an important source of income for many households amid ongoing economic difficulties, unemployment and declining agricultural production. Many impoverished families in Bindura District rely on artisanal mining for income. However, this economic activity has also brought serious social and developmental problems that negatively affect children's well-being. According to Ngirandi and Njaya (2022), data from several mining villages in Zimbabwe indicate that children are exposed to hazardous working conditions, toxic substances such as mercury and extended work hours more frequently. This exposure often results in poor health outcomes and interrupted education. According to Dughan (2019), to support their families or participate in mining-related activities, many children in mining communities drop out of school, compromising their right to education and overall development. Matambo (2024) asserts that the connection between artisanal mining and children's welfare in Zimbabwe remains poorly understood, despite the obvious dangers. Most research to date has mainly looked at the economic benefits and ecological consequences of artisanal mining, paying little attention to the social ramifications, particularly for children, as further articulated by Matambo (2024). A significant knowledge gap has been created by the lack of empirical evidence and methodical analysis on how artisanal mining methods affect different aspects of child well-being, including safety, education, health and psychosocial development. Understanding this relationship is essential for creating policies and mediation that balance livelihood demands, child safety and sustainable development in Bindura District, where artisanal mining is growing quickly.

Therefore, the purpose of this research is to evaluate how artisanal mining affects children's well-being in Bindura District, pinpoint the major variables influencing children's welfare, and suggest ways to lessen the detrimental consequences.

1.4 Aim of the study

This study's primary goal is to evaluate how artisanal mining affects children's well-being in Bindura District.

1.5 Objectives

1. To evaluate the effects of artisanal mining on children's welfare in Bindura District mining communities.
2. To establish the socio-economic parameters that influence children's exposure or participation in artisanal mining activities.
3. To analyze household and community coping mechanisms adopted to safeguard children's welfare amid artisanal mining activities.

1.6 Research questions

1. How does artisanal mining affect children's well-being in the mining communities of Bindura urban?
2. What socio-economic variables contribute to children's participation or exposure to artisanal mining activities?
3. What coping mechanisms are adopted by households and communities to protect children's welfare amid artisanal mining activities?

1.7 Assumptions of the study

This research is based on a few important presumptions that guide the investigation and the interpretation of the results. Firstly, it is assumed that artisanal mine operations have an effect on certain aspects of children's welfare, such as their health, education and psychosocial development, either directly through the involvement of children in mines or indirectly through the homes that depend on the income produced by the miners. Second, the research makes the assumption that respondents in the Bindura District will provide accurate and truthful information on their experiences, opinions and challenges related to artisanal miners and the welfare of children. Thirdly, in order to draw significant generalizations and policy consequences, it is assumed that the results in Bindura District represent broader trends in other artisanal mining communities in

Zimbabwe. Fourth, the study makes the assumption that the institutional and policy frameworks that now govern artisanal mining and child protection are not effectively enforced, which permits child vulnerability in mining communities to persist. Last but not least, it is believed that efforts to standardize artisanal mining and bolster social protection systems will improve children's well-being since the programs are inclusive and managed by the community.

1.8 Significance of the study

There is an uncomfortable tendency in the ASM literature to foreground economic productivity and environmental degradation while treating children's welfare as a secondary concern. This research is important as it tackles and addresses a fascinating but underappreciated social and developmental issue in Zimbabwe, which is the relationship between artisanal mining and child welfare. Artisanal mining has previously drawn increased attention due to its ability to alleviate poverty and support rural livelihoods, but its detrimental effects on children's development, education and health have not been sufficiently examined in the fields of study and policy. By focusing on Bindura District, a key artisanal mining hub, this study provides empirical evidence on how mining-related activities influence the welfare of children living within mining communities.

Theoretically, the research enhances knowledge in sustainable livelihoods, child development and extractive economies in developing nations. The research closes the knowledge divide by analysing the social aspects of artisanal mining rather than addressing the economic or environmental effects. The research results will be an addition to knowledge in development studies, sociology and child welfare research with a localized perspective on the intersection between the livelihoods strategy and child well-being in communities that depend on natural resources.

Regarding policy relevance, the study provides information that might help local governments, government ministries and child protection organizations such as UNICEF, the Ministry of Public Service and Labour and Social Welfare. The results of this study can be used to inform the development and application of greater mining laws, social welfare initiatives and child protection policies in artisanal mining areas.

At the community level, the study is valuable in providing awareness at the grassroots among stakeholders in the community, the parent communities and the community active leaders

regarding the risk implications of children's participation in miners' activities. The study promotes the emergence of community-initiated mitigating measures between livelihood demands and children's rights to health care, education and security. Lastly, this study supports Zimbabwe's efforts to achieve the Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth), SDG 4 (Quality Education), and SDG 3 (Good Health and Well-Being).

1.9 Delimitation of the Study

The research will be confined to Bindura District in Mashonaland Central Province. It will focus specifically on selected artisanal mining communities such as Chipadze Ward 6 and Chiwaridzo Ward 9. The study will look at how artisanal mining affects children's health, education, and psychosocial welfare. The research will cover children living in or near artisanal mining communities, as well as key stakeholders such as parents/guardians, teachers, health workers and local authorities who have direct knowledge of the issue. Only adults aged 18 years and above who are parents, guardians or key informants will be interviewed. The study will not directly interview children to ensure ethical compliance.

1.10 Limitations of the study

There were several restrictions faced during this study. The sensitive nature of the subject made an impact on data reliability because respondents, especially parents or mine operators were reluctant to be candid about their children's involvement in artisanal mining or to bring up child labour issues out of concern for possible legal repercussions or social fallout. Time and financial constraints also limited the geographical scope, but purposive sampling ensured that the most relevant communities and respondents were included. Due to fear, some participants refused to be recorded during the interviews. This was a challenge as some of the crucial information could not be recorded for use in analysing the data.

1.11 Definition of terms

a. **Children:** UNICEF (2009) defines children as individuals who are below the age of eighteen.
b. **Artisanal Mining:** Girard et al (2022) defines artisanal mining as a small-scale, often informal mining activities carried out using rudimentary methods, typically outside formal regulatory frameworks.

c. **Child Wellbeing:** Amerijckx and Humblet (2014) state that it is the overall quality of a child's life, including their physical health, education, emotional stability and social safety.
d. **Child Labour:** Edmonds (2007) defines child labour as any form of work undertaken by children that interferes with their schooling, jeopardizes their health, development, or contravenes national and international legal protections.
e. **Livelihoods:** According to Olsson et al (2014), it is the means through which households secure the necessities of life, including income, food and shelter.

1.12 Dissertation outline

1. **Chapter One:** introduces the study, providing the background, problem statement, aim, objectives, research questions, assumptions, delimitations, limitations, significance of the study and key definitions.

2. **Chapter two:** presents a critical review of the existing literature on artisanal mining and child well-being, moving from global perspectives through regional (Sub-Saharan African) dynamics to the specific Zimbabwean and Bindura District context. It also introduces and justifies the theoretical and conceptual frameworks underpinning the study.

3. **Chapter three:** sets out the research methodology, detailing the mixed-methods design, sampling strategy, data collection instruments, analytical procedures, and the ethical protocols observed throughout the fieldwork.
4. **Chapter four:** presents, analyses and discusses the empirical findings, integrating quantitative data from questionnaires with qualitative material from interviews, focus group discussions and field observations.
5. **Chapter five:** synthesizes the principal findings into conclusions, advances policy-oriented recommendations, and identifies directions for future research.

1.13 Chapter summary

This chapter has laid the groundwork for everything that follows. This chapter brought out the research topic. It also presented the research aim, objectives, problem statement, delimitations, limitations, purpose, significance, definitions of terms and assumptions of the study. The chapter also identified the specific knowledge gap this study seeks to close. The next chapter turns to the existing literature, examining what scholars working at the intersection of artisanal mining, livelihoods, and child development have found and, crucially, what they have left unanswered.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Reviewing existing literature is not simply an exercise in summarising what other scholars have written (Knopf, 2006). Snyder (2019) makes this point well, describing the literature review as a systematic and purposeful survey of prior research that serves to position a new study within the scholarly conversation to which it seeks to contribute. This chapter provides a comprehensive literature review on evaluating the effects of artisanal mining on children's welfare from a global, regional and local view.

2.1 Theoretical Framework

According to Lederman and Lederman (2015), a theoretical framework is employed in research to offer a recommended way of thinking or to recommend possible courses of action. The study's conceptual lens for interpreting the connection between artisanal mining and child well-being is provided by the theoretical framework. It anchors the research in established academic perspectives that explain how environmental, socio-economic and behavioural factors interact to influence children's welfare. The foundational theories used in this study include the child rights-based approach and the livelihoods framework. These hypotheses collectively give a thorough grasp of how artisanal mining activities shape the multidimensional well-being of children.

2.1.1 Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF) was developed primarily through the work of Chambers and Conway (1992) and subsequently refined by the UK Department for International Development as a practical tool for understanding rural poverty and livelihood choices. Its central intuition is straightforward but powerful as it states that people are not simply poor but they are poor in specific ways, because specific assets are unavailable or depleted. The framework organises these assets into five categories which are human, social, natural, physical and financial capital and argues that the combination and availability of these assets determine which livelihood strategies are open to households and what outcomes those strategies produce.

For this study, the SLF is valuable because it explains why households in Bindura District turn to artisanal mining in the first place, and how that choice then feeds back into children's welfare. According to the framework, a livelihood is sustainable if it can withstand and recover from shocks and stresses, preserve and improve its capacity, assets and offer sustainable livelihood

opportunities for the next generation without compromising the natural resource base.

a. **Human Capital:** Chambers and Conway (1992) define human capital as the skills, knowledge, health and labour capacity that individuals and households draw upon to pursue productive activities. In Bindura District, adult education levels are generally low and formal employment is scarce, which means that many household members lack the credentials to access better-paid work. Adults and occasionally children are compelled to engage in unskilled artisanal mining to survive because many households lack technical or vocational skills. Furthermore, the harsh and unsafe working conditions in mining areas negatively affect health, reducing productivity and contributing to cycles of poverty. Malnutrition, interrupted education and exposure to dangerous labour are all signs of low human capital for children, which compromises their long-term growth and well-being.
b. **Social Capital:** Bhandari and Yasunobu (2009) describe social capital as the networks, trust relationships, and shared norms that enable collective action and provide households with access to resources beyond their own immediate means. In mining communities, social capital operates in contradictory ways. On one hand, kinship networks and neighbourhood relationships can provide informal support systems that buffer households against the worst shocks. On the other hand, community norms that treat children's mining labour as normal, even desirable, undermine child protection by making it socially acceptable for young people to forgo schooling in favour of income-generating activities at the mine site. In Bindura, low institutional trust and limited engagement with formal child protection structures (like schools and social services) reduce the positive impact of social capital on children's well-being.
c. **Natural Capital:** Natural capital, in the sense used by Chambers and Conway (1992), refers to the environmental resource base that supports rural livelihoods such as land, water, forests, soils and mineral deposits. It is often the foundation of rural livelihoods. For many Bindura households, declining agricultural productivity, which is attributable to a combination of land degradation, erratic rainfall and restricted access to fertile land and inputs, has eroded the natural capital base that once sustained them. Mining offers an alternative way to extract value from the landscape, but at a high environmental cost. This change has resulted in environmental deterioration, such as soil erosion, water pollution and deforestation, which has further reduced the community's natural capital. Due to their

exposure to hazardous living conditions, contaminated water and hazardous chemicals like mercury used in the production of gold, children are disproportionately impacted by degraded environments. Therefore, the sustainability of livelihoods and the welfare of children are directly threatened by the depletion of natural capital.

d. **Physical Capital:** Wang et al. (2015) situate physical capital in the infrastructure and productive assets that communities need to sustain livelihoods and access services such as roads, clinics, schools, water systems, storage facilities, and tools. Access to such assets enhances people's capacity to work productively and access essential services. Physical capital is frequently underdeveloped in the artisanal mining communities surrounding Bindura. Many mining sites are devoid of accessible schools or health facilities, safe shelters and adequate sanitation. Without these facilities, children are forced to live and work in dangerous environments and have less access to healthcare and education. Furthermore, inadequate infrastructure makes it challenging for government agencies or non-governmental organizations to provide social services and uphold child protection regulations. Therefore, inadequate physical capital makes children more vulnerable by restricting their access to the very systems intended to support their well-being.
e. **Financial Capital:** Li et al. (2015) describe financial capital as the stocks of money and financial instruments such as savings, credit, transfers and pensions that households deploy to smooth consumption and invest in future productivity. Financial capital is frequently in short supply in rural Zimbabwe, especially in Bindura District. Many households are now forced to turn to artisanal mining as one of the few cash-based livelihood options due to the difficulty of obtaining formal credit and the decline of formal employment opportunities. Even though mining generates temporary revenue, it is extremely erratic, unregulated and informal and it offers neither long-term sustainability nor social protection. Families are forced to supplement household earnings by having children work to generate income due to a lack of stable financial capital. This reliance on child labour prolongs intergenerational poverty by compromising children's education, health and psychological well-being. Also, when a breadwinner is injured, which is a common occurrence, the entire household's financial position can collapse overnight, pulling children further into the economic orbit of the mine.

Taken together, the SLF helps this study to explain child exposure to mining not as the product of individual carelessness or moral failure, but as the predictable outcome of structural conditions that leave households with very few viable alternatives. This framework thus provides an economic rationale for the persistence of child exposure to mining despite its harmful consequences.

2.1.2 Child Rights-Based Approach (CRBA)

Since the SLF illuminates the economic logic of artisanal mining, the Child Rights-Based Approach (CRBA) provides the moral and legal framework for assessing its consequences. The CRBA is rooted in the United Nations Convention on the Rights of the Child (UNCRC, 1989), which Zimbabwe ratified in 1990, and in the broader architecture of international human rights law. As UNICEF (2019) elaborates, the approach insists that children's welfare is not a matter of charity or benevolence but of rights and that those rights generate corresponding duties for governments, institutions, families, and communities. This approach frames child well-being as both a moral and legal obligation of the state, community and other stakeholders. It changes the focus from considering children as passive receivers of welfare to recognizing them as active rights-holders. According to Goldhagen et al (2020), the CRBA aims to increase the ability of duty-bearers such as governments, parents and communities to fulfil their responsibilities and the capacity of rights-holders' children to claim their entitlements. The framework underscores four key principles that include equality and non-discrimination, participation, the best interests of the child and the right to survival and development.

a. **Equality and Non-discrimination:** Non-discrimination is one of the CRBA's fundamental principles. Article 2 of the Convention on the Rights of the Child (UN General Assembly, 1989), which prohibits discrimination and requires that state parties protect and defend children's rights as stated in the convention. According to Article 2 of the CRC, state bearers must follow all necessary steps to guarantee protection of children from discrimination of any kind. Therefore, upholding and protecting children's right to be free from discrimination in all areas that have an impact on their lives and development is the responsibility of those who are relevant to do so. Besson (2005) articulates that the non-discrimination principle mandates that all children's rights be upheld without exception. The non-discrimination principle helps ensure that all children, including those in mining

communities, enjoy equal rights.

b. **Participation:** According to Smith (2007), the participation principle includes the notion that children should be actively and freely involved in decision-making as well as in activities that allow them to exercise their socio-economic and political rights and realize their human rights. Everywhere in the world, the government and other relevant organizations, including families and communities, routinely disregard the opinions of children (Skauge 2021). Children's right to free speech and to be heard on matters that affect their lives is recognized by the CRC (UN General Assembly 1989, art. 12). This therefore, helps to evaluate the accessibility of several programs, like child protection from mining operations.

c. **The best interests of the child:** Zermatten (2010) states that, as with the other CRBA principles, realizing children's rights at school and in social contexts depends critically on the idea that the child's best interests must come first. The best interests of children must always come first in all matters about them, according to Article 3(1) of the CRC (UN General Assembly 1989). Therefore, all pertinent public and private actors should be guided by this concept to ensure that their activities and interventions prioritize the rights and interests of children and this idea applies to all choices that have an impact on a child's survival and development. Based on this basic assumption, the study evaluated the amount and availability of resources intended to protect children's best interests by applying the principle of the child's optimal welfare. It was also utilized to look into how children's well-being in Bindura District was impacted by artisanal mining and to closely examine how much the government and relevant organizations considered the needs and circumstances of the children when making decisions and carrying out their implementation.

d. **Accountability and the rule of law:** From a rights-based standpoint, accountability and respect for the law are essential to a child's community well-being. This methodology's main goal is to increase the extent of duty bearers' responsibilities in their diverse endeavors by making sure they recognize and comprehend the responsibilities they bear (Dinbabo, 2013). In order to promote development and guarantee accountability, a rights-based framework usually calls for the adoption of laws, procedures and administrative procedures that guarantee the advancement of rights and opportunities by placing international human rights principles in a local context (Dinbabo, 2013). In order to

evaluate the extent to which relevant stakeholders adhere to laws and policies about children, it was necessary to incorporate this principle into the current study.

The CRBA explains how mining activities may violate children's rights to education, health, and protection from dangerous labor (articles 24 and 28) in relation to artisanal mining in Bindura District. According to the framework, local and governmental authorities are in charge of ensuring that children are not compelled to participate in exploitative activities or exposed to hazardous environments. Additionally, the CRBA promotes participatory methods in which communities and children actively identify and resolve problems that impact their well-being. Using this framework in the study aids in evaluating the accountability systems that ought to safeguard children, as well as how artisanal mining affects them. Therefore, the framework helps evaluate whether existing coping mechanisms adequately protect children or whether stronger policy and institutional interventions are required.



Figure 2.1: The CRBA Framework

Source: UNCRC-Child-Rights-Based-Approach, (2019)

2.2 Conceptual Framework

Leshem and Trafford (2007) describe the conceptual framework as a structured representation that organizes and outlines the main ideas, factors, and assumed connections relevant to a study or research problem. It acts as a road-map to navigate the research, guiding the different ideas, theories and variables to conceptualize and structure the research.

2.2.1 Conceptualizing Artisanal Mining

Artisanal and small-scale mining (ASM) is informal, small-scale mineral extraction carried out through rudimentary tools and techniques, typically outside the framework of formal regulation, with minimal capital investment and no guaranteed social protection for those who undertake it (Hilson, 2017). ASM operations typically involve families and small groups who depend on mineral extraction for survival. Hentschel et al (2002) states that artisanal mining is common in more than 80 countries and supports about 40 million people globally. Although ASM helps reduce poverty, it is linked to hazardous working conditions, environmental damage and child labour, especially in developing nations. Amid high unemployment and diminishing agricultural productivity, artisanal mining has emerged as a crucial livelihood strategy in Zimbabwe (Maponga and Mutemererwa, 2019).

2.2.2 Conceptualizing Child Wellbeing

Child welfare refers to the all-around and pertaining life quality of children, including their physical health, education, mental state, safety and social relationships (Ben-Arieh et al, 2013). Well-being is a mix of material and non-material elements like having access to quality education and appropriate healthcare, nutrition and a conducive family environment. Within this framework, artisanal mining often undermines child well-being through poverty, hazardous working conditions, school dropouts and poor health access (Schwartz, 2021). Therefore, assessing the relationship between artisanal mining and child welfare necessitates looking at the ways in which economic survival tactics interact with the rights and development of children.

2.3 Global and Regional Perspectives on Artisanal Mining and Child Wellbeing

2.3.1 Impacts of Artisanal Mining on Children's Well-being

Many people around the globe rely on artisanal and small-scale mining (ASM) for their livelihood, especially in developing nations with limited access to formal employment opportunities. Globally, artisanal mining is recognized as one of the most hazardous sectors for children. According to the International Labour Organization, over a million children worldwide are involved in mining and quarrying activities, many of which take place in artisanal mining operations. These children frequently operate in hazardous environments that endanger their general development and physical well-being. Children who labour in artisanal mines are

frequently exposed to hazardous materials like dust, mercury and hazardous chemicals used in the processing of minerals.

As mercury is frequently used to extract gold, health concerns are especially widespread in gold mining towns. These children frequently work with dangerous chemicals like cyanide and mercury without safety gear, making them prone to chronic fatigue, respiratory illnesses, injuries and malnourishment (Spiegel, 2009). Thousands of youngsters engage in artisanal gold mining in nations like Burkina Faso and Mali, where they are exposed to mercury during the gold amalgamation process, which carries serious health risks. Due to children's participation in mining operations, artisanal cobalt mining in the DRC has garnered international attention. About 40,000 youngsters are reportedly involved in the nation's cobalt mining industry, frequently working in hazardous tunnels and handling hazardous substances without safety gear (Thompson, 2024). These circumstances put kids at serious risk for long-term developmental issues, respiratory disorders and traumas. Many children in Asia suffer from neurological disorders as a result of frequent exposure to mercury vapours during gold amalgamation processes, especially in the Philippines and Indonesia (Kippenberg, 2015).

Children's educational outcomes are also impacted by artisanal mining. According to Ouma et al (2017), as a result of their participation in mining operations or the demands of family labour, children in many mining communities either drop out of school or attend infrequently. Research conducted in Ghana has revealed that children who participate in artisanal gold mining frequently perform poorly academically and attend school less frequently because mining provides short-term cash gains or due to long working hours rather than long-term educational investment. The loss of educational opportunities keeps children stuck in a cycle of poverty, limiting their ability to pursue better livelihoods as adults (Moore, 2005). For instance, in mining areas of Burkina Faso and Tanzania, children who abandon school to mine rarely return to formal education, resulting in intergenerational poverty and social exclusion (Hilson, 2016). These worldwide trends show that artisanal mining undermines children's capacity for long-term human development in addition to denying them educational opportunities.

Children's emotional well-being is impacted by artisanal mining in addition to its effects on their physical and academic well-being. Studies from Ghana, Sierra Leone and Latin America indicate that child miners frequently endure anxiety, depression, social stigma and exposure to violence in

mining environments (Hilson and McQuilken, 2019). Children in certain mining villages are compelled to assume adult tasks too soon, which has an impact on their emotional growth and general well-being. Many children suffer from trauma and low self-esteem as a result of witnessing or experiencing physical abuse, sexual exploitation and neglect. Children's emotional and social development can be distorted by prolonged exposure to hard labour and unstable circumstances, which can also limit their sense of community and isolate them from their peers. The emotional burden of child labour in mining is, therefore, an often overlooked but critical aspect of global well-being analysis.

2.3.2 Socio-Economic Factors Driving Children's Exposure to Artisanal Mining

Globally, children's involvement in artisanal mining is mostly influenced by poverty and a lack of possibilities for employment. Families in rural and mining settlements in many developing nations depend on mining as a means of subsistence because there are few job prospects and low agricultural production. The World Bank estimates that over 40 million people globally depend on small-scale and artisanal mining for their livelihoods and children frequently assist in generating household income. According to the Sustainable Livelihoods Framework (Chambers and Conway 1992), families often rely on mining as a survival strategy when the availability of natural, financial and human capital is restricted.

According to Ouma et al (2017), poverty, unemployment and a lack of other sources of income are the main reasons why families in nations like Tanzania and Burkina Faso engage their children in artisanal mining. Similar to this, children in Indonesia are involved in small-scale gold mining because of poverty, a lack of educational opportunities and a lack of other sources of income. Also, children sometimes accompany their parents to mining sites due to the family's failure to afford daycare services or because mining operations are included in the family's livelihood strategies.

The inadequate implementation of underage labour rules in many mining regions is another significant concern. According to Celek (2004), although many nations have laws that forbid dangerous child labour, children are frequently permitted to continue working in mining operations due to a lack of funding and weak regulatory control. Numerous mining towns are found in isolated rural regions with little government supervision which makes it hard to implement some regulations.

Also, children may be encouraged to engage in mining activities by cultural norms and family expectations. According to André and Godin (2014), in certain communities, mining is perceived as a viable source of revenue and children are seen as contributors to household labour. Eradication efforts are further complicated in some areas by cultural norms and cultural factors that normalize child participation in mining (ILO, 2017).

2.3.3 Household and Community Coping Mechanisms

According to Hilson (2010), households and communities frequently create coping strategies to protect children's welfare despite the difficulties presented by artisanal mining and these mechanisms are largely influenced by socioeconomic setting and resources at hand. At the home level, some families try to strike a balance between their kids' education and mining activities by letting them go to school while helping with mining on the weekends or during school breaks. In other situations, families prioritize sending younger children to school while older siblings work as miners to support the household (Banchirigah, 2008).

In certain areas, community-based support networks have been developed to combat child labour in the mining sector. According to UNICEF (2020), local groups, places of worship and civic leaders occasionally raise awareness of the risks associated with child labour and urge parents to place a high priority on education. For instance, in countries such as Peru and the Philippines, non-governmental organizations and local community groups have launched awareness campaigns and educational initiatives to promote school attendance and deter child labour. Other initiatives introduced include formalizing mining activities, expanding educational opportunities and creating alternative sources of income for family groups. (World Bank, 2019).

International frameworks and conventions have served as a guide for global policy initiatives aimed at preventing child labour in mining. According to Hilson (2010), international organizations like the International Labour Organization and the United Nations Children's Fund have also carried out initiatives to reduce child labour in mining communities by bolstering child protection systems, enhancing family livelihood opportunities and promoting education. Children are not allowed to work in hazardous jobs under ILO Convention No. 138 on the minimum age for employment and Convention No. 182 on the worst kinds of child labor. Other international efforts to control supply chains and lower health risks from hazardous substances include the UN Global Mercury Partnership (UNEP, 2018) and the OECD Due Diligence Guidance for Responsible

Mineral Supply Chains. However, due to corruption, informality and a lack of institutional capacity, enforcement remains weak in many nations despite these international efforts (ILO, 2021).

2.4 National Perspectives on Artisanal Mining and Child Wellbeing in Zimbabwe

In Zimbabwe, artisanal and small-scale mining (ASM) has proved to be one of the most important sources of income, especially in rural and peri-urban areas where conventional employment options are scarce (Zvarivadza, 2018). Due to economic difficulties, joblessness and rising demand for commodities such as gold, the industry has grown quickly over the last 20 years. According to Matambo (2024), the well-being of children living in mining communities has become a major concern, despite the fact that artisanal mining makes a huge contribution to household income and the country's gold production. According to the Zimbabwe Miners Federation, over 60% of Zimbabwe's gold production is made by artisanal and small-scale miners, highlighting the sector's significance to the country's economy. Nevertheless, since many artisanal mining operations are informal, labour laws and safety requirements are usually weak or poorly implemented. Children who live in mining towns are therefore regularly exposed to a dangerous environment and socioeconomic constraints that could have a negative impact on their wellness (Nkomo and Mpofu, 2022). According to Matsiwira (2022), due to economic necessity rather than official job opportunities, districts such as Bindura, Mazowe, Kadoma, Shurugwi, Chinhoyi and Gwanda have developed into hubs for small-scale mining operations.

The Mashonaland Central Province's Bindura District is well-known for its abundant mineral resources, especially gold. Both large-scale mining operations and several artisanal mining sites are present in the district, drawing people looking for work. Many local communities' socioeconomic landscapes have changed as a result of the district's increasing artisanal mining operations. In Bindura, households with few job options now frequently turn to artisanal mining as a means of subsistence. However, children are now more exposed to mining surroundings as a result of the growth of these activities. According to Matemera (2021), children in mining communities may help their parents with tasks that put them in danger like getting water, hauling ore or processing minerals.

2.4.1 Impacts of Artisanal Mining on Children's Wellbeing in Zimbabwe, Bindura District

Among the most obvious effects of artisanal mining in Zimbabwe are health issues. The health of children in Bindura District has been seriously harmed by mercury contamination from alluvial gold mining along rivers like Mazowe and Pote. The health, education and psychological well-being of children have all been significantly impacted by the quick growth of artisanal mining. According to Charema (2024), mercury is frequently used by artisanal miners to amalgamate gold and the waste is frequently dumped into open water bodies where kids play, bathe and gather drinking water. Nyamombe and Tanyanyiwa (2025) state that children are subjected to environmental hazards like dust, open pits, unstable mine shafts and chemicals used in mineral processing in many mining areas. Long-term mercury exposure can cause respiratory ailments, neurological conditions and cognitive impairment, especially in young children whose immune systems are still developing (Chamoli and Karn, 2024). Children who live close to artisanal mining sites commonly suffer from skin infections, diarrheal illnesses and malaria, according to field assessments conducted in Mashonaland Central by Mkodzongi and Spiegel (2019). This is mainly due to inadequate sanitation and stagnant water produced by abandoned pits. The health effects of artisanal mining on children in Bindura and Mazowe show how environmental damage, exposure to toxins and hazardous physical conditions compromise the basic right of children to a healthy and safe environment.

Artisanal mining has been linked to health hazards as well as difficulties in children's learning. According to Nkomo and Mpofu (2022), due to involvement in mining operations or home financial demands, some children in mining districts either drop out of school or attend irregularly. Particularly in low-income households, the possibility of making money from gold panning could occasionally persuade children to put mining ahead of education. This trend has raised concerns among educators and local authorities regarding declining school attendance and long-term impacts on youth development.

Another issue in mining communities is psychosocial well-being. According to Lee et al (2002), due to family financial difficulties, exposure to hazardous situations and restricted access to leisure or developmental opportunities, children residing in these settings may experience emotional stress. Family breakdown, exposure to violence, substance abuse and moral decay are common characteristics of mining areas (Hilson and McQuilken, 2019). Children's social growth and safety

may be impacted by social instability caused by the presence of temporary mining populations. Since artisanal miners work in loosely regulated areas with little law enforcement, children in Bindura's informal settlements are regularly exposed to alcohol abuse, crime and prostitution. Additionally, social problems, including overcrowding, poor access to sanitary facilities and exposure to dangerous behaviours may be exacerbated by the existence of informal mining communities. Children's mental and physical health may suffer as a result of these conditions.

2.4.2 Socio-Economic Drivers of Children's Exposure to Artisanal Mining in Zimbabwe

Socioeconomic considerations play a major role in the involvement or exposure of children to artisanal mining activities in Zimbabwe. According to Matambo (2024), due to financial difficulties including poverty and unemployment, many households are now dependent on unofficial sources of income like artisanal mining. The Reserve Bank of Zimbabwe claims that gold continues to be the nation's biggest source of foreign exchange, and the expansion of the artisanal mining industry has drawn many people looking for work possibilities.

Mining frequently becomes a desirable alternative source of income in peri-urban areas like Bindura, where agriculture may be affected by resource scarcity and climate variability (Matambo, 2024). Children may be actively or indirectly involved in mining operations as part of home labour methods as a result of household poverty. According to Matambo (2024), several households in rural and mining communities struggle financially, making it difficult for them to pay for necessities like food, medical care and education and due to the availability of natural resources, artisanal mining has emerged as a widely available livelihood option. As a result, households frequently look for additional sources of income. The growing cost of living and restricted access to financial resources in rural areas exacerbate economic vulnerability. The short-term financial benefits of small-scale mining or gold panning may seem more alluring to many families than long-term educational commitments and thereby, some children would quit school or split their time between mining and school to help support their families (Nyamombe and Tanyanyiwa, 2025).

Inadequate enforcement of child labour regulations in informal mining sectors, high school-related expenses and limited access to high-quality education are other factors that expose children to mining (Nkomo and Mpofu, 2022). Sometimes, due to a lack of childcare or law enforcement supervision, children visit mining sites with their parents or guardians. According to Spiegel

(2009), Zimbabwe has regulations and practices saving minors from dangerous labour, but in informal industries like artisanal mining, enforcement can be difficult and mining operations sometimes take place in isolated or unregulated regions with little government monitoring. Children can continue to engage in mining operations without facing serious legal repercussions since there is inconsistent supervision and enforcement (Spiegel, 2009). Furthermore, resource limitations may make it more difficult for local governments to adequately regulate mining operations.

Perceptions of mining and community norms are also important. According to Munyoka (2020), children's goals and attitudes toward education may be influenced by the perception in some mining communities that artisanal mining is a feasible source of income for young people. As part of their socialization and adult preparation, children in certain communities are expected to assist with domestic chores. Children may inevitably be involved in mining-related chores when mining takes over as the community's primary economic activity.

2.4.3 Household and Community Coping Mechanisms in Bindura

Despite these challenges, communities and households in Bindura District have developed a variety of coping strategies to protect children's welfare in mining settings. Some families encourage school attendance while restricting children's participation in mining jobs as a way to strike a balance between their children's education and livelihood pursuits (Mutemeri and Petersen 2018). Households also attempt to diversify livelihood sources to reduce their dependence on artisanal mining. Some families combine mining with other economic activities such as small-scale farming, livestock rearing or petty trading (Maponga and Ngorima, 2003).

Schools, churches and local leadership are examples of community institutions that are crucial in advancing child wellbeing. According to Chigumira and Masiyandima (2019), these organizations frequently advise families on the value of education and the dangers of child labour in mining operations. Some programs like Basic Education Assistance Module (BEAM), help provide tuition assistance to orphans and vulnerable children (OVCs) in mining areas to ensure that financial barriers do not lead to school desertion (Ministry of Public Service, Labour and Social Welfare, 2020).

Programs to improve child protection and support sustainable livelihoods in mining communities have also been initiated by government agencies and non-governmental organizations. The

Development Aid from People to People (DAPP) Zimbabwe has a six-month comprehensive project launched in early 2024 which includes community development initiatives aimed at lowering reliance on hazardous mining activities, educational support programs and awareness campaigns around child labour (DAPP Zimbabwe, 2024). However, ongoing financial strains, a lack of resources and the unofficial character of artisanal mining operations can occasionally restrict the efficacy of these coping strategies (Mkodzongi and Spiegel, 2019).

2.5 Research gap

Artisanal and small-scale mining (ASM) in Zimbabwe has been a subject for numerous studies, but a majority have mostly concentrated on the economic advantages, environmental harm and regulatory difficulties associated with ASM, with little attention paid to its social and child-centred ramifications. The literature currently in publication frequently ignores the particular effects on children's health, education and psychosocial wellbeing in favour of treating them as incidental subjects within larger mining analyses. Additionally, although prior studies have looked at ASM in districts like Kadoma and Gwanda, despite the district's rising artisanal mining activity and growing child vulnerability, there is a shortage of empirical data unique to Bindura. Therefore, this study bridges that gap by providing empirical, context-specific evidence from Bindura District, contributing to national and regional discourse on child protection, sustainable livelihoods and responsible artisanal mining.

2.6 Chapter summary

The study's theoretical framework and literature review were presented in this chapter. It reviewed existing literature related to artisanal mining and child wellbeing. Globally, studies show that ASM contributes significantly to poverty alleviation but also generates widespread social and environmental costs, including child labour, environmental degradation and public health risks. Regionally, the African context mirrors global findings but with unique socio-economic and cultural dynamics. At the national level, research in Zimbabwe has highlighted similar trends but remains limited in depth and scope. The theoretical and conceptual frameworks adopted for this study provides an appropriate lens for understanding the link between artisanal mining and child wellbeing.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

This chapter lays out the methodological approach utilised to assess the impacts of artisanal mining on the well-being of children in Bindura District. It presents the research methodology, description of the study area, target population, sampling procedures, data collection tools and methods of data analysis. Furthermore, the chapter discusses issues of validity, reliability and ethical considerations observed during the study. The methodology is developed to ensure that the research objectives are addressed comprehensively and that the findings are credible, reliable and relevant to policy and practice.

3.1 Description of the study area

The study was situated in Bindura District, which lies within Mashonaland Central Province in north-central Zimbabwe. Artisanal and small-scale gold mining (ASM) operations are well-known of being concentrated in the district, especially along the Mazowe River and its tributaries. Given that they are close to unofficial mining sites, communities like Chipadze and Chiwaridzo were chosen. According to Chiba (2023), Bindura is characterized by a mixed rural-urban setting, where many residents rely on small-scale mining as a livelihood strategy. The district has several socioeconomic issues, such as poverty, unemployment and restricted access to social services, all of which increase the vulnerability of children to be directly or indirectly involved in artisanal mining to help with poverty alleviation at home. A shortage of empirical data unique to this district and the growing number of reports of children participating in mining-related activities influenced the decision to use Bindura as the area of study.

3.2 Research Design

Dannels (2018) describes the research design as the structural plan that aligns a study's questions, theoretical framework, data sources, and analytical methods into a coherent whole. For this study, a mixed-methods design was adopted that deliberately combines quantitative and qualitative approaches within a single inquiry. Numerical information on the frequency of health problems, school attendance rates and psychosocial indicators among children in mining communities was gathered using the quantitative component. On the other hand, the qualitative element offered more profound understandings of the perceptions, coping strategies and lived experiences of children, parents, teachers and local leaders impacted by artisanal mining. This design was selected because

it facilitates triangulation, which improves the precision and depth of analysis (Creswell and Plano Clark, 2018). The mixed-methods strategy was particularly suitable for this study since the phenomenon under investigation, child wellbeing regarding artisanal mining is multidimensional, encompassing physical, social and emotional aspects.

3.3 Target Population

Willie (2024) defines the target population as a group of elements or objects that hold the necessary data from which inferences are to be drawn. The target population comprised individuals and institutions directly or indirectly affected by artisanal mining in Bindura District. This included children (aged 10–17 years) residing in mining communities, parents or guardians, teachers, health workers and community leaders. Due to time and resource constraints, only a representative sample was selected.

3.4 Sampling and Sampling techniques

Davis (2015) defines sampling methodology as a means of selecting particular elements that represent the entire population**.** Alvi (2016) asserts that sampling techniques are methods employed when selecting people to participate in research**.** Purposive and stratified random sampling approaches were combined in this study to improve the data's representativeness and depth. Key informants were selected using purposive sampling which included teachers, local leaders and health professionals. These participants were specifically picked because of their knowledge, experience and firsthand knowledge of child welfare and artisanal mining difficulties. Purposive sampling is justified by its capacity to yield rich, specific and context-specific information that is unobtainable from broad responders. It was crucial to include people who are informed about and actively involved with the situation since the study aims to comprehend how mining affects children. This would increase the validity and applicability of the results.

Additionally, parents and children from mining settlements in Chipadze and Chiwaridzo were chosen using stratified random selection. Participants were chosen at random from each group after the population was initially separated into relevant strata for example children and parents, age groups, gender and geography. This method was selected to guarantee that various demographic segments were fairly represented, which decreased sampling bias and improved data generalizability. Since mining communities are diverse and children's experiences may differ

among various social and demographic groups, the use of stratified sampling in this study is especially required.

Combining purposive and stratified random sampling gives the study more qualitative depth and makes it more representative. By ensuring that significant, knowledgeable individuals are included and that a variety of viewpoints from the greater community are recorded, this mixed approach improves the validity and dependability of the research findings.

3.5 Sample size

According to Oribhabor and Anyanwu (2019), sampling plays a vital role in research, since a sample's results can be applied to the full population being studied**.** When determining the sample size, the researcher aimed to find a middle ground between minimizing project expenses and gathering enough data while maintaining respondent comfort and avoiding any sense of threat. As a result, a sample size of 79 participants was used to ensure representativeness and manageability. The sample distribution was as follows 20 children, 50 parents/guardians and 9 key informants that is, 4 teachers, 2 health workers, 2 social workers and a community leader being a ward councillor to provide adequate representation across key stakeholder categories relevant to the study objectives. The participants were chosen across both communities to maximise responses, inclusion and coverage.

3.6 Data Collection Methods

According to Gallagher (2009), research instruments are essential tools used to measure variables such as viewpoints, mindsets and conceptions. Four instruments were used in this study which are questionnaires, semi-structured interviews, focus group discussion guides, and a structured observation protocol. Using these instruments allowed for data triangulation, which enhanced the study's credibility and gave a more thorough comprehension of the problems.

3.6.1 Questionnaires

According to Lietz (2010), a questionnaire is a predesigned document containing specific questions that are distributed to respondents to obtain relevant responses about a particular event. As a result of their quickness, efficiency and cost-effectiveness, the researcher used both closed-ended and open-ended questions to collect more data. The questionnaires were designed in a clear and straightforward manner to minimize ambiguity for the respondents. To ensure clarity, the researcher employed easily understandable language without complex jargon. Participants were

given structured questionnaires to complete in order to get quantitative information on health symptoms, school attendance, mining involvement and psychosocial experiences. The researcher made use of a household questionnaire in order to collect demographic, social and economic data of respondents. The questionnaires were distributed to 50 parents or guardians who were informed about the study's purpose, enabling them to make an informed decision regarding their participation. Questionnaires were distributed in person and participants were given adequate time to respond. The researcher successfully gathered the respondent's completed questionnaires on an agreed-upon date. Participants felt comfortable responding to the questionnaire as they were assured of confidentiality and complete anonymity. This facilitated quicker responses, as participants were able to express their opinions openly without fear of judgment.

3.6.2 Interviews

A semi-structured interview was chosen for its conversational flexibility. According to Roulston and Choi (2018), a qualitative interview comprises a researcher giving questions to one or more participants and documenting their responses. Interviews often lead to substantial analysis and discussion. According to Jennings (2005), this interview strategy allows the researcher to obtain a deeper insight into the participant while enabling free and unrestrained discourse between the interviewer and the research subject. Semi-structured interviews were carried out with teachers, health professionals, social workers and also community leaders. These provided deep qualitative insights into the wider effects of artisanal mining on children and the community. Semi-structured interviews were selected because they offered the flexibility to modify and add new questions, as well as utilize open-ended inquiries. Conducting interviews throughout the study had the primary advantage of allowing the researcher to obtain specific data and clarifications that could not be acquired from the questionnaire alone. Focus groups and interviews were held in both Shona and English, depending on participants' preferred language and were audio-recorded with consent.

3.6.3 Focus Group Discussions

Focus Group Discussions (FGDs) were utilized to generate thorough group insights about how artisanal mining affects children's welfare in Bindura District. Nyumba et al (2018) state that in an interactive setting where group dynamics promote deeper introspection and shared narratives, focus group discussions (FGDs) enable participants to share their experiences and viewpoints. Four FGDs were conducted in total being two with children and two with parents or guardians.

Each group comprised ten participants and was conducted in both locations. These groups were carefully selected to ensure comfort, confidentiality and representation of different mining-affected communities. This method was appropriate considering that children often communicate more freely in group settings than in one-on-one interviews. Their responses provided critical insights into absenteeism, fatigue, exposure to hazards and feelings of exclusion or stigma. The researcher first asked for parental/guardian consent of the children involved in focus group discussions.

The parents' FGD focused on household survival strategies, the economic role of mining, perceptions of child labour, challenges in supervising children and the impact of mining on schooling and family wellbeing. The researcher made use of gatherings already happening to conduct (FDGs), in this case, the researcher used church gatherings as it was easy to get people for the groups with the help of the church leaders. The interactive nature of FGDs made them particularly valuable for revealing social norms, beliefs and cultural factors influencing children's wellbeing in artisanal mining communities.

3.6.4 Observations

Non-participant observations were conducted in order to comprehend the social, environmental, and physical environments where children in Bindura's artisanal mining areas reside and interact. Active mining pits, processing facilities near residential areas, schools and kid-friendly gathering places were among the observation sites. Angrosino and Rosenberg (2011) state that this method allows the researcher to directly witness conditions that participants described, thereby strengthening the validity of the data through real-world visual evidence. To record contextual observations and nonverbal clues, field notes were obtained.

Overall, the observations enabled the researcher to triangulate self-reported data with visual and environmental realities. They also allowed for a deeper appreciation of how the combination of economic hardship, environmental hazards, and weak social services shapes children's everyday experiences in artisanal mining areas.

3.7 Field Procedures

Fieldwork was conducted over a concentrated four-week period following the receipt of ethical clearance from Bindura University of Science Education (BUSE) and formal written permission from the Bindura District Administrator's Office. The sequence of data collection was organised

to move from the broader to the more specific areas. Observational visits to establish familiarity with the physical environment were conducted first, followed by questionnaire administration to parent and guardian respondents, and then interviews and FGDs with key informants and child participants followed. This sequencing meant that the researcher arrived at each interview with some prior contextual understanding of the community, which helped formulate relevant follow-up questions and interpret responses in context. All data materials were stored securely throughout the fieldwork period and transported safely to the researcher's institution upon completion.

3.8 Data presentation and analysis

Both quantitative and qualitative methods were used in the data analysis. According to Muhamad (2023), a mixed-methods approach enables the researcher to capture both quantifiable trends and in-depth lived experiences, thereby strengthening the legitimacy and richness of the results. By combining quantitative and qualitative approaches, the researcher triangulated findings from questionnaires, interviews, focus group discussions and observations to enhance the study's credibility. Descriptive statistics such as frequencies, percentages, and tables were used to analyse quantitative data. These statistics summarize findings on health, education, and psychosocial indicators. These methods described and analysed the numerical data collected through a structured survey. The findings were compiled and displayed in tables and graphs to aid clarity and comparison across the three main dimensions of child well-being, namely health, education, and psychosocial outcomes. Using a computer, the researcher applied these analytic techniques to systematically and efficiently identify patterns, proportions, and trends within the sample population.

Qualitative data from interviews and FGDs were transcribed, translated where vernacular language was used and analysed using thematic analysis. Translations were carefully checked to maintain the meaning of the participants' responses and to minimize the risk of interpretive distortion. Emerging themes were grouped according to the three main dimensions of child wellbeing health, education and psychosocial outcomes. The thematic structure provided an organising framework that enabled systematic comparison of experiences across various participants and contexts. By combining quantitative and qualitative approaches, the research made sure that it captured both measurable impacts and lived experiences, providing a holistic understanding of the research problem.

3.9 Ethical considerations

Given that the study involved minors, strict ethical standards were observed. Participants were informed about the study's goals, their right to withdraw at any moment and the confidentiality of their answers. Informed consent was secured from every adult participant before any interview, FGD or questionnaire session began. Parental or guardian consent was obtained for all child participants, alongside child assent. No child was included whose parent or guardian had not consented, and no child was pressured to continue if they appeared uncomfortable at any point during a discussion. No identifying information was recorded and pseudonyms were used in data presentation. The study complied with the provisions of Zimbabwe's Children's Act (Chapter 5:06) and adhered to international research ethics guidelines for studies involving vulnerable populations. Audio recordings and transcripts were stored in password-protected digital files, accessible only to the researcher, and will be deleted upon completion of the academic research.

3.10 Validity and Reliability

Bruton et al. (2000) define reliability as the degree to which a measurement instrument produces consistent results when applied repeatedly under the same conditions or a property that guards against random error**.** To ensure validity, data collection instruments were reviewed by an academic supervisor with experience in community-based research in Zimbabwe before being finalised. It was then piloted in a mining community in an adjacent district that shares many characteristics with the study sites but was not itself included in the sample and revised in light of feedback from pilot participants. Reliability was enhanced by using consistent data collection procedures, standardized tools and triangulation of multiple data sources in both mining communities of Chipadze and Chiwaridzo. The use of both quantitative and qualitative data strengthened the internal consistency of the findings and minimized researcher bias.

3.11 Chapter Summary

The research design, sampling strategies, sample size, data collection, analytic methods, and ethical considerations utilized to investigate the effects of artisanal mining on children's well-being in Bindura District are all covered in this chapter. These methods guaranteed the validity, dependability, and ethical soundness of the results reported in Chapter Four.

Chapter 4: DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter presents the findings of the fieldwork conducted in Chipadze and Chiwaridzo communities in Bindura District. The preceding chapters have provided an overview of the research problem, literature review and research methodology, establishing a theoretical basis for accurately analysing the results obtained throughout the data collection process. The data was analysed based on the findings gathered through questionnaires, focus group discussions and interviews, providing both numerical and qualitative information to obtain a thorough comprehension of the phenomenon being studied. Tables and figures were used to present data in this chapter.

4.1 Response Rate

Upon receiving the completed questionnaires and conducting the necessary interviews, the researcher carefully reviewed all the responses to analyse the answers provided by the various participants and draw conclusions. The data was presented using the information gathered by the researcher throughout the entire research process.

Of the 50 questionnaires distributed to parents and guardians across the two study communities, 45 were returned in a fully usable state, giving a response rate of 90 percent. Table 4.1 below displays the rate of response. Mugenda and Mugenda (2003) state that a 70 percent response rate is very good for social science research, whereas a rate of 90 percent is highly satisfactory and provides a sound basis for the quantitative analysis that follows. The response rate was considered sufficient for generating reliable findings, given that most of the intended respondents participated in the study. The reason for the high response rate is due to the positive rapport established between the researcher and the respondents. However, it should be noted that five questionnaires (10%) were left incomplete by respondents who were occupied with their work.

Table 4.1: Questionnaire Response Rate

Category	**Distributed**	**Returned (Valid)**	**Response Rate (%)**
Parents/Guardians	50	45	90

Table 4.2 below displays the response rate achieved through the interviews conducted, with 8 out of 9 respondents being interviewed, resulting in an 93% response rate. The single non-participation was a teacher who was unable to attend on the agreed date and could not be rescheduled within the fieldwork window. The majority's responses allowed the researcher to draw conclusions and the researcher's follow-up actions were essential in guaranteeing a true representation of the entire community being studied.

Table 4.2: Interview Response Rate by category

Informant Category	**Scheduled**	**Participated**	**Response rate (%)**
Teachers	4	3	75
Health workers	2	2	100
Social workers	2	2	100
Ward Councillor	1	1	100
Grand Total	9	8	93

4.2 Demographic Characteristics of Respondents

4.2.1 Gender Distribution of Respondents

The study intended to assess the gender composition of participants to understand the diversity of viewpoints represented. Table 4.3 shows the gender breakdown of the 45 parents and guardians who completed questionnaires.

Table 4.3: Gender Distribution of Respondents

Gender	**Frequency**	**Percentage**
Male	25	56%
Female	20	44%
Total	45	100%

Table 4.3 shows that male respondents constituted the largest number compared to female respondents, demonstrating the male dominance in artisanal mining activities as men tend to dominate the more physically demanding aspects of underground mining. The substantial proportion of female respondents nonetheless ensures that the perspective of primary caregivers who in most of the households visited were women is well represented in the data. By

understanding gender distribution, the researcher managed to get a variety of viewpoints on how artisanal mining affects children's well-being, while not only focusing on one gender's response. Gender distribution also helped in evaluating if respondents' opinions on child labor, education, health and protection between men and women were different.

Table 4.4: Children's Gender Distribution of (FDGs) Participants

Gender	**Frequency**	**Percentage**
Boys	8	40%
Girls	12	60%
Total	20	100%

The gender breakdown of children who took part in the Focus Group Discussions (FGDs) is shown in Table 4.4 above. According to the results, of the 20 children that took part, 12 were girls and 8 were males. The greater percentage of females in the focus group discussions (FGDs) suggests that female children were more accessible or eager to engage in conversations on the impacts of artisanal mining on children's well-being. However, the study's methodological strength is that it included both boys and girls in the FGDs. This guaranteed that the qualitative data included a variety of gendered perspectives and experiences related to child wellbeing across health, education, and psychological aspects.

4.2.2 Age Distribution of Participants

Table 4.5 below presents the age categories of participants involved in the study.

Table 4.5: Age Distribution of Participants (including children)

Age Group (years)	**Frequency**	**Percentage**
10-17	20	31%
18–30	16	25%
31–45	20	31%
46 and above	9	23%
Total	65	100%

Table 4.5 above shows that most of the responders were economically engaged people aged between 31 and 45 years. Children aged 10–17 years also represented a substantial number of respondents because the study focused on child well-being in mining towns. The use of different age distributions in the study was important, for respondents from different age groups possess varying experiences, responsibilities and perceptions regarding artisanal mining and child well-being. Adults contributed insights into household livelihood choices, economic constraints and parenting practices, while children offered first-hand views on how mining affects their everyday lives, education, health and psychosocial wellness. Including different age categories ensured that the study captured both adult and child perspectives, thereby enhancing the findings' validity and dependability.

4.3 Impacts of Artisanal Mining on Children's Well-being

The first research objective sought to understand how artisanal mining affects children living in the two study communities. The results showed that children's physical health, education and psychological well-being are all impacted by artisanal mining, both directly and indirectly.

4.3.1 Impact of Artisanal Mining on Children's Health

Respondents were asked to identify common health problems affecting children in mining communities.

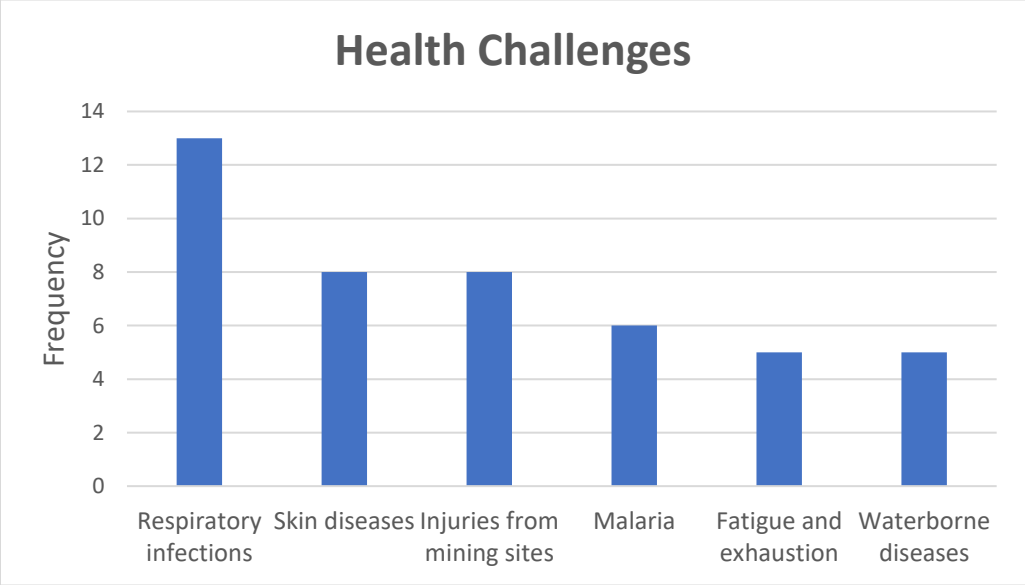


Figure 4.1: Health Challenges Experienced by Children

Figure 4.1 shows the major health challenges affecting children in artisanal mining communities of Bindura. The findings reveal that respiratory infections were the most common health concern facing children in mining areas. Respondents attributed this to continual exposure to dust created during gold extraction and ore crushing processes. Skin illnesses and injuries were also widespread due to poor sanitation and dangerous mining settings. Other problems highlighted include malaria, tiredness and waterborne infections. Figure 4.1 therefore, illustrates that children in mining communities are exposed to harmful environmental and health conditions connected with artisanal mining activities.

A health worker who had been stationed at a community clinic in the area for several years described the pattern she had come to expect through an interview:

"Children in these communities are exposed to contaminated water, dust, and unsafe pits. We frequently treat respiratory infections, skin rashes, and injuries caused by mining activities. We see the same presentations over and over again. Children with persistent coughs, children with breathing difficulties, and children with rashes that won't clear up. The parents often don't connect these things to mining because it's just the environment, they've always lived in. But when you look at where these families are located relative to the mining sites, the connection is not difficult to make."

Mercury contamination of the Mazowe River and its tributaries add another layer of risk that is less visible but potentially more serious in the long term. Charema (2024) and Nyamombe and Tanyanyiwa (2025) have both documented the use of mercury amalgamation techniques in the district's artisanal gold operations and the casual disposal of mercury-contaminated waste. Children who play near or collect water from affected stretches of river are absorbing mercury through multiple pathways simultaneously.

During the child FGDs, health experiences were discussed with some openness. One group of girls aged 12 to 15 described recurring coughs and skin itching as ordinary parts of life in a way that suggested these conditions had been normalised rather than recognised as mining-related harms. One participant put it directly:

"Sometimes when we visit the mine sites, we play near the mining pits, and the dust makes it difficult to breathe."

As to complement each other, one parent during a focus group discussion also stated:

"Children are always coughing because of the dust from the mining areas, especially during ore crushing activities."

Observations taken during the investigation indicated abandoned mining holes filled with stagnant water near residential areas and children's play areas. Children were seen playing near mining sites without protective equipment.

That normalisation of ignoring health-related problems itself is a finding of some importance. Children who experience harm so regularly that it ceases to register as remarkable are less likely to seek help, and their parents are less likely to connect health problems to their environmental cause. These findings are similar to those of Chigonda (2018), that environmental health harms in Zimbabwean mining communities are frequently invisible to those living within them, precisely because they are so routine. In accordance with WHO (2020), children who undergo exposure to hazardous mining conditions for a long time have a greater chance of experiencing respiratory and neurological problems. The findings also connect with those of Dietler et al. (2021), who noted that poor housing and environmental degradation lead to poor health outcomes for children residing in mining colonies in Sub-Saharan Africa.

4.3.2 Impact of Artisanal Mining on Education

The educational dimension of children's well-being emerged as one of the most acutely affected in both communities. Figure 4.2 below illustrates the educational problems experienced by children in mining communities.

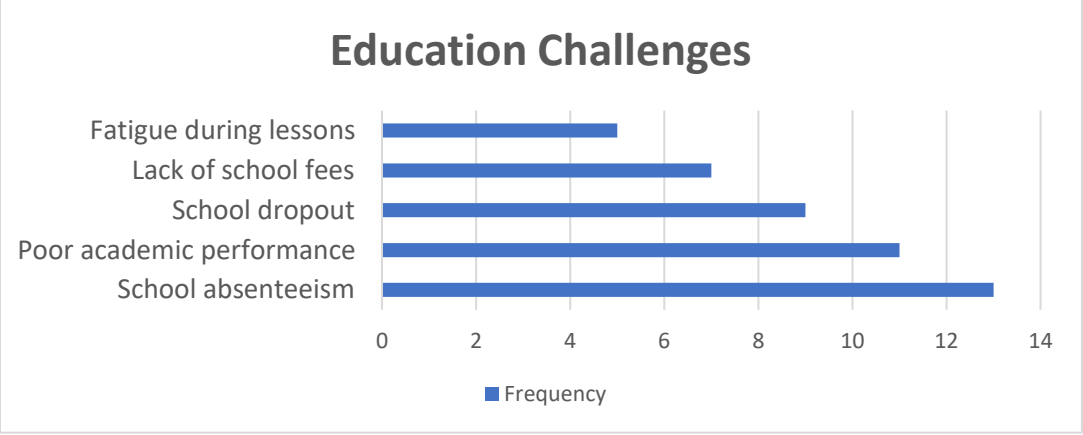


Figure 4.2: Educational Challenges Faced by Children

In Figure 4.2, the results indicate that the most prevalent educational issue affecting kids in mining towns was school absenteeism, followed by poor academic performance and school dropout. According to reports, many children skipped school to help their parents with domestic chores or mining activities. Many children are forced to engage in mining operations either directly or indirectly due to financial constraints, which jeopardizes their academic progress. The most direct is children's own participation in mining-adjacent tasks as during the FGDs, several children described helping parents before and after school hours through carrying water, sorting ore by the riverbank, or watching younger siblings so parents could work longer shifts. Less directly, the economic precarity of mining households creates conditions in which school-related costs like fees, uniforms and books become difficult to sustain, particularly during periods when the gold price drops or a seam runs out.

A teacher at one of the primary schools serving the Chipadze community described a pattern she had observed over several years of experience in the area during an interview:

"You can almost predict the absences. When there is news of a gold rush like when people are saying that someone has found a good seam nearby, the attendance drops in the following weeks. The children don't necessarily go to mine themselves, but the household reorganises around the opportunity. Some children take on more domestic work, some are kept home to look after younger siblings, some simply follow their parents to the site. The school becomes a lower priority."

Another teacher drew attention to the quality dimension of educational participation, not just the quantity:

"Even the children who come to school regularly are often not really present. They are exhausted, they have not eaten properly, they cannot concentrate. A child who spent the previous afternoon at a mining site does not arrive in class the next morning ready to learn."

In the FGDs, children were surprisingly candid about the economic calculus that made mining seem attractive relative to education. One boy, around 15 years old, put the trade-off in terms that were economically lucid if educationally troubling. One child participant stated:

"My uncle made more money in one week at the mine than my father made in a month from selling vegetables. School takes many years. The mine gives you money now. I know education is better, but it is hard to see that when your family needs money today."

Focus group discussions with children revealed that some children see mining as a quicker way of earning money as compared to completing school and finding a job. According to the participants, children are frequently forced into mining activities due to poverty and peer pressure.

These findings complement Ouma et al. (2017), whose study in Tanzania indicated that children in artisanal mining communities commonly miss school or totally leave schooling due to home poverty and mining-related work demands. The findings are also in agreement with Mukwada and Chingombe (2021), who suggested that children in Zimbabwean mining areas commonly struggle to balance education and mining operations, resulting in poor academic performance and limited future chances. The cumulative effect is a drift toward school withdrawal that is gradual enough to avoid triggering any single decisive intervention but is ultimately irreversible in many cases.

4.3.3 Psychosocial Effects of Artisanal Mining on Children

The study also assessed the psychosocial well-being of children in mining communities.

The pie chart below presents the psychosocial effects experienced by children living in mining communities.



Figure 4.3: Psychosocial Challenges Affecting Children

Figure 4.3 shows that exposure to violence and crime accounted for the highest proportion, followed by emotional stress and anxiety. Other concerns were exposure to substance misuse, neglect and poor supervision as well as social isolation. The results demonstrate how inadequate mining communities exacerbate social issues like drug misuse and criminality, which have a detrimental impact on children's emotional health. These findings were consistent with

observations made during field visits in both Chipadze and Chiwaridzo, the researcher noted a visible presence of alcohol consumption during daylight hours in these residential areas, and was informed by a social worker that domestic violence incidents tend to spike around periods of both boom (when men have sudden cash) and bust (when seams run out).

A community leader in one of the study areas articulated the social ecology of mining settlements with some precision:

"When mining comes to a community, it brings money but it also brings people including strangers from other places who are here for the gold and who do not have ties to this community. They bring habits and behaviours that our children then see every day. Drinking, fighting, sometimes women selling themselves. Our children grow up thinking this is normal life. That worries me more than anything else."

One Social worker during an interview noted that:

"There is an increase in referrals of children from mining communities over the preceding years, relating to neglect, exposure to adult conflict and in some cases, sexual abuse. The connection to mining was not always direct as mining does not cause domestic violence or substance abuse but the conditions associated with informal mining settlements appear to create environments in which these problems are more prevalent and less visible to the authorities responsible for child protection."

Children who participated in focus group discussions expressed concerns about safety and emotional well-being. One boy described being teased by children at school whose families were better off:

"Some children say we are dirty because our parents work at the mine. They say we smell chemicals. It makes you not want to go to school."

Another child spoke about anxiety in terms that were striking for their mental quality:

"*I worry at night when my father has not come home. The mine is dangerous and sometimes men get hurt. I cannot sleep properly until he is back home which is sometimes straining to me."*

Due to household poverty and dangerous community conditions, some of the children who took part in focus group discussions expressed sentiments of anxiety, feelings of fear, stress, tension

and negativity. These findings match with Hilson and McQuilken (2019), who reported that children living in artisanal mining communities are subject to emotional trauma, dangerous social situations and social marginalization. Likewise, Lee et al. (2002) observed that children raised in economically unstable and stressful circumstances commonly suffer anxiety, fear and emotional insecurity.

4.4 Socio-Economic Factors Driving Children's Exposure to Artisanal Mining

The second research objective sought to identify the structural and socio-economic conditions that bring children into contact with artisanal mining environments. Table 4.6 summarises the factors identified by respondents, ranked by frequency of mention.

Table 4.6: Socio-Economic Drivers of Children's Exposure to Mining

Factor	Frequency	Percentage
Poverty and unemployment	15	33%
Lack of alternative livelihoods	10	22%
School-related expenses	8	18%
Peer influence	7	16%
Weak law enforcement	5	11%
Total	45	100%

4.4.1 Poverty and Household Income Insecurity

Table 4.6 shows the major socio-economic factors contributing to children's exposure to artisanal mining. Poverty and unemployment were identified as the leading factors, followed by lack of alternative livelihood opportunities, as major drivers for children's exposure to mining. The results show that children's participation in artisanal mining operations was mostly driven by poverty and unemployment, as many households relied largely on mining revenue to make ends meet.

A social worker who had worked in the district for over a decade offered an account that was representative of what the study heard from several professional informants:

"You have to understand the context. These are families where formal employment essentially disappeared in the 2000s and has not come back. Farming has become unreliable because of the rains. There are no factories, no offices, no formal sector to speak of. When I ask families why they

are at the mine, the answer is always the same that what else is there? The mine is not a choice, it is a default."

Parents in the FGDs articulated this tension with some anguish. One mother captured the contradiction clearly:

"I know the mine is not good for my children. I see how tired they are, I see the coughing. But if I do not go to the mine and if they do not help me sometimes, we will not eat. You cannot choose your children's health when the alternative is your children's hunger."

These findings support Matambo (2024), who stated that economic hardship and unemployment have forced many Zimbabwean households into artisanal mining as a livelihood strategy. Similarly, Chakanyuka (2020) observed that rural households increasingly rely on artisanal mining due to climate-related agriculture issues and a lack of sustainable economic possibilities. Applying the Sustainable Livelihoods Framework to this finding makes the logic clear as when financial capital is absent, natural capital (agricultural land) has become unproductive and human capital is insufficient for formal employment, artisanal mining is what a rational household does. Children become caught up in that dynamic not because parents are indifferent to their welfare, but because the household cannot function without every available hand.

4.4.2 Lack of Alternative Livelihood Opportunities

Many respondents said that households were compelled to rely on artisanal mining due to decreasing agricultural production and a lack of formal work opportunities.

One teacher, during an interview, stated:

"Extended droughts and unstable economic conditions decreased agricultural revenue, forcing families to turn to mining as a means of survival. As a result, minors got indirectly involved by helping their parents or hanging out at mining sites."

The findings also accord with the Sustainable Livelihoods Framework, which states that households seek riskier livelihood methods such as artisanal mining when access to financial, natural and human capital is limited. The dependence on children's labour or exposure to mining environments therefore reflects broader household survival strategies within economically vulnerable communities.

4.4.3 Weak Enforcement of Child Protection Laws

The study also discovered that weak enforcement of child protection laws contributes to children's continued involvement in mining activities. Mining comes to seem normal even aspirational for young people in ways that erode whatever protective influence schools, parents and community leaders might otherwise provide

A social worker described the enforcement problem with some candour:

"We have the laws. The Children's Act, the Labour Act and they are clear that children should not be working in hazardous environments. But do we have the capacity to go to every riverbank and every illegal shaft and enforce those laws? We do not. The operations are scattered they move as the operators know the terrain better than the inspectors do. So the law exists but it is not felt."

A parent during a focus group discussion highlighted that:

"Informal mining operations are poorly monitored, and children continue to work or spend time at mining sites despite the existence of child protection legislation."

The results show that children's ongoing exposure to dangerous mining sites is a result of both poor institutional capability and insufficient monitoring. These findings correspond with Spiegel (2009), who stated that the informal and unregulated character of artisanal mining in Zimbabwe makes the implementation of child labour regulations difficult. Similar findings were also observed by Celek (2004), who underlined that insufficient institutional supervision in underdeveloped nations permits child employment in mining villages to endure.

4.5 Household and Community Coping Mechanisms

The third research objective examined the strategies used by communities and households to safeguard children's well-being in the face of artisanal mining operations.

Figure 4.4 was used to present the coping strategies adopted by households and communities to safeguard children's welfare.

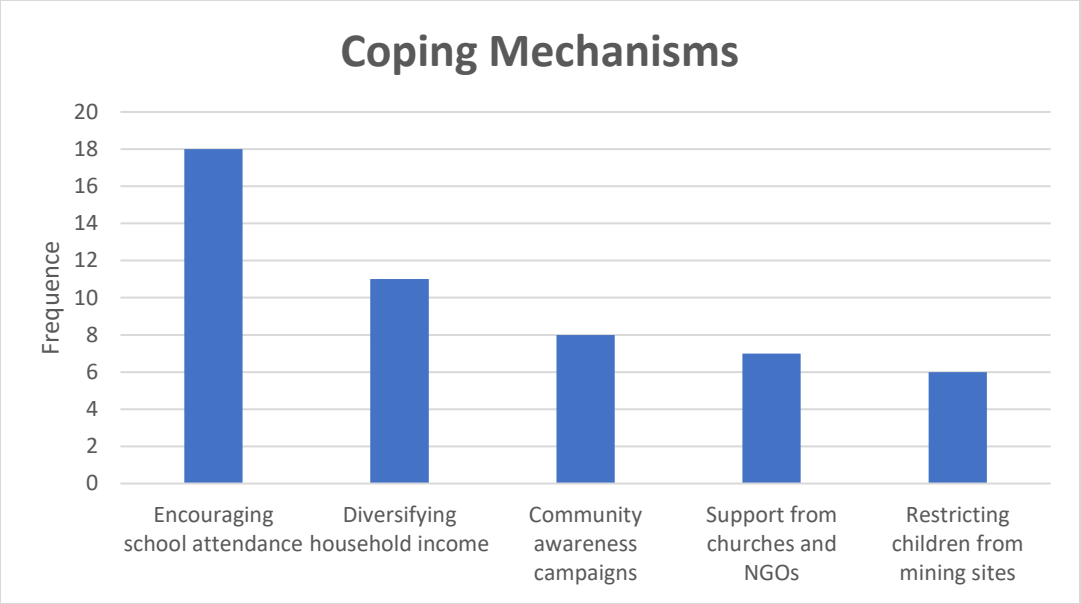


Figure 4.4: Household and Community Coping Mechanisms

4.5.1 Promotion of Education

The most widely reported household coping strategy was an active effort to keep children in school despite economic pressures. Figure 4.4 shows that encouraging school attendance emerged as the most common coping strategy, followed by livelihood diversification and community awareness campaigns. These mechanisms demonstrated how families balance economic survival with the need to safeguard children's education, health and psychosocial wellbeing. This was not simply a passive aspiration, like in several cases, parents described specific arrangements they had made to ensure attendance, such as saving small amounts for school fees during periods of better income, negotiating with teachers to allow children to attend while payment arrangements were being sorted, and restricting children's mining involvement to times that would not conflict with school hours.

Several parents expressed a clear generational aspiration that shaped these efforts, as the desire that their children would not have to do what they were doing. One father, describing his own situation in Chiwaridzo, was direct:

"I am here in mining because I had no education and now I have no choice. I do not want my son to be here in twenty years saying the same thing. So I tell him every day that school comes first. The mine will always be here. Your school years will not."

A community leader, during an interview, added:

"Community members sometimes work together to discourage children from spending time at mining sites during school hours."

Children who participated in focus group discussions also emphasized the importance of education. One child participant explained:

"My parents always tell me that education is better than mining because mining is dangerous."

Teachers also reported that some parents worked together with schools to monitor absenteeism and encourage children to remain in class. These findings are similar to those of Chigumira and Masiyandima (2019), who noticed that parents, schools and community leaders in mining communities often work to promote school attendance and oppose child labour. The findings also support UNICEF (2021), which highlights that continued educational participation is one of the most effective protective measures against child exploitation and poverty.

4.5.2 Livelihood Diversification

To lessen their reliance on mining, some households tried to diversify their sources of income through farming, small-scale trading, and raising poultry. However, respondents pointed this diversification was more modest than the term might imply, as the additional activities tended to generate small and inconsistent amounts of income that supplemented rather than replaced mining earnings. But even modest diversification serves an important function, as it reduces the household's vulnerability to the volatility that is characteristic of artisanal gold income, and it models for children an understanding of economic life that is not entirely organised around the mine.

A parent during a focus group discussion highlighted that:

"Some households are beginning to engage in poultry projects and gardening as alternative livelihood strategies."

One respondent, through an open-ended question noted:

"We try to combine farming and small businesses with mining so that children do not spend too much time at mining sites."

One child in an FGD described her family's situation in terms that illustrated this diversification:

"Despite the involvement of my father in mining, my mother also sells tomatoes at the market so that we can buy books and food."

These findings relate to Mutemeri and Petersen (2018), who revealed that many households in mining areas strive to mix mining with alternative livelihood activities, such as farming and minor commerce, to prevent overdependence on mining income.

4.5.3 Community and Institutional Support

Beyond individual household strategies, a range of community-level and institutional support mechanisms were identified as contributing to the protection of children's welfare. Community institutions such as churches, schools and non-governmental organizations were identified as important actors in child protection. Respondents mentioned awareness campaigns, counselling services and educational support programs such as BEAM, which are essential interventions for vulnerable children.

One teacher stated:

"Churches and NGOs sometimes provide uniforms, food, and school fees assistance for vulnerable children in mining communities, which helps to boost school attendance."

A church leader also explained:

"The church is sometimes the only institution that reaches everyone. The government offices are far away and people are afraid of them. But people come to church. So when we speak about children's welfare from that platform, it reaches families that nothing else reaches."

A social worker during an interview added:

"Community awareness campaigns have helped some parents understand the dangers of exposing children to mining activities."

NGO-supported programmes, including BEAM and the community development initiative launched by DAPP Zimbabwe (2024), were acknowledged by multiple respondents as providing meaningful, if insufficient support. The findings also relate to Chigumira and Masiyandima (2019),

who reported that schools, churches and local groups play a vital role in increasing awareness on matters such as child exploitation and encouraging school attendance in mining villages.

Despite these efforts, respondents argued that support mechanisms remained inadequate due to financial limitations and increasing poverty levels in the community. A teacher who had spent years working with families in mining communities put it plainly:

"*Every year we have these conversations. The community tries, the parents try, the churches try. But the poverty is always bigger than the efforts. You can encourage a family to send their child to school, but if the family does not have school fees and does not have food, encouragement is not enough. The structural problem requires a structural response."*

This observation captures something important that the coping mechanisms documented in this study reflect a real commitment on the part of individuals and communities' efforts. But they are operating at a scale and with resources that are fundamentally mismatched with the scale of the problem.

4.7 Chapter Summary

The findings presented in this document chapter shows a situation in which children in Bindura District's artisanal mining communities face overlapping and mutually reinforcing forms of harm. The results showed that children's health, education and psychological well-being are all adversely affected by artisanal mining. Children's exposure to mining activities was shown to be mostly caused by poverty, unemployment and a lack of alternative sources of income. Communities and households have created coping strategies, including encouraging education and diversifying their sources of income, but these are still insufficient because of ongoing financial difficulties. The gap between what those resources can achieve and what the situation requires is the space in which policy must intervene. The study's results, recommendations and summary of findings are presented in the next chapter.

CHAPTER 5: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This final chapter draws together the threads of the study, synthesising what the evidence shows, what it means, and what should be done about it. The chapter offers suggestions for enhancing the well-being of children residing in artisanal mining areas and is structured in compliance with the research objectives. The chapter concludes areas where future research is needed, acknowledging that this study, while it fills a genuine gap, also opens new questions that others will need to pursue.

5.1 Summary of Findings

The initial objective aimed to assess the impact of artisanal mining on child well-being in Bindura District mining communities. According to the study, children's physical health is seriously threatened by artisanal mining, with respiratory infections being the most common health issue as a result of ongoing dust exposure during ore crushing and gold extraction, followed by skin conditions, injuries and waterborne illnesses connected to stagnant water in abandoned mining pits. Due to widespread reports of school absenteeism, low academic performance and dropout rates. Educational outcomes were also severely disrupted. Many children skipped school to help with mining-related tasks or were lured by the perceived short-term financial benefits of mining over education. Furthermore, exposure to criminality, violence, substance misuse and social instability in informal mining settlements harmed children's psychological health, leading to emotional stress, stigma and insecurity (Hilson and McQuilken, 2019).

The second objective sought to establish the socio-economic factors driving children’s exposure to artisanal mining. Poverty and unemployment emerged as the dominant drivers cited by respondents, as most households depended on artisanal mining as their principal source of income, given the collapse of formal employment and declining agricultural productivity. Peer pressure and school-related expenses further diverted children from education in favour of mining-related pursuits. In line with findings by Spiegel (2009) and the Sustainable Livelihoods Framework (Chambers and Conway, 1992), weak endorsement of child protection laws was also identified as a structural enabler because the informal and geographically dispersed nature of mining operations limited authorities' ability to effectively monitor and regulate children's participation.

The third objective looked at coping strategies used in households and communities to protect the welfare of children. The most popular home strategy was encouraging school attendance, with many parents placing a strong emphasis on education as a way to escape mining dependency and occasionally working closely with schools to monitor attendance. Churches, schools and non-governmental organizations made contributions at the community level through awareness campaigns, counselling services and financial support programs like the Basic Education Assistance Module (BEAM). Additionally, several households used small-scale farming and petty commerce to improve their mining income. However, given the ongoing poverty, the informality of mining operations and the limited institutional resources to address the extent of children's vulnerability, respondents repeatedly pointed out that these procedures remained inadequate.

5.2 Conclusions

The research concludes that the well-being of children in Bindura District is severely and multifacetedly threatened by artisanal mining. Living near active mining operations and contaminated environments directly exposes children in the settlements of Chipadze and Chiwaridzo to respiratory infections, skin disorders, waterborne illnesses and injuries. Inadequate environmental laws, inadequate sanitary infrastructure and the lack of safety precautions in informal mining sites are all responsible for these health effects.

Secondly, the educational outcomes of children in Bindura District are severely compromised by artisanal mining. School absenteeism, poor academic performance and school dropout are widespread consequences of mining-related labour demands, household poverty and the perceived short-term financial attractiveness of mining over schooling. The long-term socioeconomic prospects of impacted children are limited by the intergenerational cycles of poverty and mining dependency that are perpetuated by incomplete formal schooling.

Thirdly, children's psychological health is seriously jeopardized in artisanal mining communities. Children's emotional growth, sense of security and social integration are severely harmed by the surroundings created by exposure to violence, crime, substance misuse and social instability in informal mining areas. The normalization of negative social behaviours in mining communities, household poverty and insufficient supervision all exacerbate these psychosocial harms.

Fourthly, systemic socioeconomic vulnerabilities, specifically poverty, unemployment, the lack of viable livelihood options and the high cost of education, are at the core of children's continued

exposure to artisanal mining. Weak implementation of child protection laws and deeply ingrained social norms that legitimise children's financial contributions to households further reinforce these structural problems.

Fifthly, even though families and communities have created coping techniques to safeguard children's welfare, such as encouraging school attendance, diversifying sources of income and utilising institutional support, these tactics are still weak and inadequate. The coping mechanisms are constrained by persistent financial hardship, the informal and largely unregulated nature of artisanal mining and the inadequate resourcing of child protection systems. These coping mechanisms are unlikely to successfully address the structural causes of child vulnerability in artisanal mining communities in the absence of more robust policy intervention and systemic assistance.

Collectively, these conclusions affirm that the welfare of kids in Bindura District's artisanal mining communities cannot be adequately protected without addressing the intersection of poverty, livelihood insecurity, regulatory failure and weak social protection systems. The Sustainable Livelihoods Framework and the Child Rights-Based Approach, which served as the study's guiding principles, both affirm that duty-bearers such as governments, communities and families must fulfil their responsibilities to children as rights-holders to significantly improve child wellbeing.

5.3 Recommendations

The recommendations that follow are grounded in the study's findings and conclusions and are addressed to specific actors with the capacity to act on them. Children's ongoing exposure to artisanal mining operations is due to the weak implementation of child safety legislation. Therefore, to reduce children's involvement in dangerous mining operations, local authorities, social welfare departments, and law enforcement agencies should increase monitoring of informal mining locations.

The results showed that school absenteeism, school failure, and dropping out are common experiences among children in the mining communities. The study therefore calls upon the Government and non-governmental organizations to expand educational assistance programs such as BEAM, school feeding, and the provision of learning materials to incentivize children to stay in school.

The study confirmed that children in the mining communities experience psychosocial problems, including emotional stress, exposure to violence and lack of supervision. Awareness campaigns need to be carried out by community leaders, schools and churches to highlight the risks of child labor and the necessity of protecting children's welfare.

The results indicated that children are affected by respiratory infections, skin diseases and injuries resulting from the unsafe mining environment. The study suggests that the local health authorities should enhance access to health care, clean water and sanitation facilities in mining communities.

Children are exposed to artisanal mining due to poverty and unemployment being major factors. The study, therefore, suggests that alternative sources of livelihood like poultry farming, gardening and small-scale businesses should be elevated to limit the dependence of households on artisanal mining.

The study also revealed that there is already some collaboration between households and schools to promote school attendance. Monitoring and assisting children who are in danger of quitting school as a result of mining-related pressures should continue to be done in partnership between schools, parents and community leaders.

5.4 Areas for Further Research

The relationship between artisanal mining and the welfare of children in Bindura District has been empirically demonstrated by this study. Nonetheless, additional research is advised in the following areas:

1. The long-term psychological impacts of artisanal mining on children residing in mining communities should be investigated in future research.
2. Further research should investigate the efficacy of existing child protection policies and programs in artisanal mining areas in Zimbabwe.
3. Future studies should also focus on gender differences in the experiences of children affected by artisanal mining activities.
4. Future researchers may conduct comparative studies between different mining districts in Zimbabwe to establish broader national trends regarding artisanal mining and child well-being.

5.6 Chapter Summary

This chapter presented the summary of findings, conclusions and recommendations of the study on the impacts of artisanal mining on the well-being of children in Bindura District. The research concluded that artisanal mining has widespread and multifaceted detrimental consequences on children's physical health, education and psychosocial wellbeing despite its importance as a livelihood strategy for many households. These effects are mostly caused by poverty, unemployment, a lack of other sources of income and weak enforcement of child protection laws. Despite their existence, household and community coping strategies are still insufficient to completely address these structural causes of child vulnerability. The study calls for comprehensive, multi-stakeholder action involving government, NGOs, schools, communities and families to protect children's rights and improve their wellbeing in artisanal mining communities. The recommendations are in line with Zimbabwe's international obligations under the ILO and UNCRC conventions on child labour, as well as the national imperatives found in the Sustainable Development Goals, especially SDG 8 (Decent Work and Economic Growth), SDG 3 (Good Health and Well-being), and SDG 4 (Quality Education).

References

Alvi, M. (2016). A manual for selecting sampling techniques in research.

André, G., and Godin, M. (2014). Child labour, agency and family dynamics: The case of mining in Katanga (DRC). *Childhood*, *21*(2), 161-174.

Angrosino, M., and Rosenberg, J. (2011). Observations on observation. *The Sage handbook of qualitative research*, *4*, 467-478.

Banchirigah, S. M. (2008). Challenges with eradicating illegal mining in Ghana: A perspective from the grassroots. *Resources Policy*, 33(1), 29–38.

Besson, S. (2005). The Principle of Non-Discrimination in the Convention on the Rights of the Child. *International Journal of Children's Rights*, *13*(4), 433.

Ben-Arieh, A., Kaufman, N. H., Andrews, A. B., George, R. M., Lee, B. J., and Aber, L. J. (2013). *Measuring and monitoring children's well-being* (Vol. 7). Springer Science & Business Media.

Bhandari, H., and Yasunobu, K. (2009). What is social capital? A comprehensive review of the concept. *Asian Journal of Social Science*, *37*(3), 480-510.

Bruton, A., Conway, J. H., and Holgate, S. T. (2000). Reliability: what is it, and how is it measured?. *Physiotherapy*, *86*(2), 94-99.

Celek, B. M. (2004). The International Response to Child Labor in the Developing World: Why Are We Ineffective. *Geo. J. on Poverty L. & Pol'y*, *11*, 87.

Chambers, R., and Conway, G. (1992). *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century.* IDS Discussion Paper No. 296.

Chamoli, A., and Karn, S. K. (2024). The effects of mercury exposure on neurological and cognitive dysfunction in human: a review. *Mercury toxicity mitigation: sustainable nexus approach*, 117-135.

Charema, J. (2024). *Heavy Metal Contamination and Its Spatial Distribution From Mining Wastes in Receiving Environments of the Mazowe District, Zimbabwe* (Doctoral dissertation, University of the Witwatersrand, Johannesburg (South Africa)).

Chiba, M. (2023). The Diversification of Rural Livelihoods after the Year 2000 in Zimbabwe. *Advances in Social Sciences Research Journal*, *10*(7), 296-313.

Chigonda, T. (2018). *Environmental and Socioeconomic Impacts of Artisanal Mining in Zimbabwe. Journal of Sustainable Development in Africa*, 20(3), 42–56.

Chigumira, G., and Masiyandima, N. (2019). *Child labour in artisanal and small-scale mining in Zimbabwe*. Harare: Zimbabwe Economic Policy Analysis and Research Unit (ZEPARU).

Chirisa, I., Mumba, M., and Muzenda, A. (2021). *Artisanal and small-scale mining in Zimbabwe: Devolution, challenges, and policy implications.* Journal of Sustainable Development in Africa, 23(4), 45–60.

Clark, H., Royal, P., West, H., McGlone, F., Walker, S., Devine, S., and Gribble, J. (2020). *Wellbeing and Nurture: Physical and Emotional Security in Childhood* (pp. 1-70). The Cross-Party Group for a Fit and Healthy Childhood.

Dannels, S. A. (2018). Research design. In *The Reviewer's Guide to Quantitative Methods in the Social Sciences* (pp. 402-416). Routledge.

DAPP Zimbabwe. (2024). *Community development and child protection initiatives in mining communities*. Harare: Development Aid from People to People Zimbabwe.

Davis, J. M. (2015). Sampling and what it means. *The Cambridge guide to research in language teaching and learning*, 198-205.

Dietler, D., Loss, G., Farnham, A., de Hoogh, K., Fink, G., Utzinger, J., and Winkler, M. S. (2021). Housing conditions and respiratory health in children in mining communities: An analysis of data from 27 countries in sub-Saharan Africa. *Environmental Impact Assessment Review*, *89*, 106591.

Dinbabo, M. (2013). Child rights in sub-Saharan Africa: A call for a rights-based global research agenda. *Social Work*, *49*(3).

Dughan, J. P. (2019). *School attendance, dropout, and academic performance in mining areas the case of selected Junior High Schools in the Atwima Kwanwoma District* (Doctoral dissertation, University of Education, Winneba).

Edmonds, E. V. (2007). Child labor. *Handbook of development economics*, *4*, 3607-3709.

Eniowo, O. D. (2022). *Prediction of creditworthiness of a viable artisanal and small-scale mining operation* (Doctoral dissertation, University of Pretoria).

Gallagher, M. (2009). Data collection and analysis. *Researching with children and young people: Research design, methods and analysis*, 65-127.

Girard, V., Molina-Millán, T., and Vic, G. (2022). Artisanal mining in Africa. In *Working Paper Series. No. 2201*.

Goldhagen, J., Clarke, A., Dixon, P., Guerreiro, A. I., Lansdown, G., and Vaghri, Z. (2020). Thirtieth anniversary of the UN Convention on the Rights of the Child: advancing a child rights-based approach to child health and well-being. *BMJ Paediatrics Open*, *4*(1), e000589.

Hentschel, T., Hruschka, F., and Priester, M. (2002). Global report on artisanal and small-scale mining. *Mining, minerals and sustainable development*, *70*(1), 1-67.

Hilson, G. (2010). Child labour in African artisanal mining communities: Experiences from northern Ghana. *Development and Change*, 41(3), 445–473.

Hilson, G. (2016). *Artisanal and Small-Scale Mining and Livelihoods in Sub-Saharan Africa. Journal of Development Studies*, 52(1), 23–39.

Hilson, G. (2017). *Artisanal and small-scale mining and development: Challenges and opportunities. Journal of Cleaner Production, 21*(1), 899–906.

Hilson, G., and McQuilken, J. (2019). *Four Decades of Support for Artisanal and Small-Scale Mining in Sub-Saharan Africa. Extractive Industries and Society*, 6(3), 964–978.

Kippenberg, J. (2015). *" What... If Something Went Wrong?: Hazardous Child Labor in Small-scale Gold Mining in the Philippines*. Human Rights Watch.

ILO. (2017). *Global Estimates of Child Labour: Results and Trends 2012–2016.* International Labour Organization.

International Labour Organization. (2021). *Children in hazardous work: What we know, what we need to do.* ILO Publications.

Jennings, G. R. (2005). Interviewing: a focus on qualitative techniques.

Kpokro, B. K. D. F. (2025). *Contaminated Networks: Mercury Supply, Entrepreneurship, and Informal Gold Mining in Rural Sub-Saharan Africa* (Doctoral dissertation, University of Surrey).

Knopf, J. W. (2006). Doing a literature review. *PS: Political Science & Politics*, *39*(1), 127-132.

Lederman, N. G., and Lederman, J. S. (2015). What is a theoretical framework? A practical answer. *Journal of Science Teacher Education*, *26*(7), 593-597.

Lee, T., Foster, G., Makufa, C., and Hinton, S. (2002). Families, orphans and children under stress in Zimbabwe. *Evaluation and Program Planning*, *25*(4), 459-470.

Leshem, S., and Trafford, V. (2007). Overlooking the conceptual framework. *Innovations in education and Teaching International*, *44*(1), 93-105.

Lietz, P. (2010). Research into questionnaire design: A summary of the literature. *International journal of market research*, *52*(2), 249-272.

Li, Y., Wang, X., Westlund, H., and Liu, Y. (2015). Physical Capital, Human Capital, and Social Capital: The Changing Roles in C hina's Economic Growth. *Growth and change*, *46*(1), 133-149.

Maponga, O., and Mutemererwa, D. (2019). *The socio-economic impacts of small-scale mining in Zimbabwe.* Harare: University of Zimbabwe Publications.

Maponga, O., and Ngorima, C. F. (2003). Overcoming environmental problems in the gold panning sector through legislation and education: The Zimbabwean experience. *Journal of Cleaner Production*, 11(2), 147–157.

Matambo, R. (2024). Artisanal mining in Zimbabwe: A complex narrative of balancing economic gains and social strife. *Conflict Trends*, *2024*(3), 3-10.

Matemera, M. T. (2021). Occupational health risks amongst artisanal and small-scale gold miners in Bindura Township, Zimbabwe, *52*(2), 249-272

Matsiwira, L. (2022). *Funding models for gold productivity from artisanal and small-scale gold mines in Zimbabwe* (Doctoral dissertation, CHINHOYI UNIVERSITY OF TECHNOLOGY).

Ministry of Labour, Public Service and Social Welfare. (2022). *Child Protection and Labour Report.* Government of Zimbabwe.

Mkodzongi, G., and Spiegel, S. (2019). Artisanal gold mining and rural livelihoods in Zimbabwe: Drivers, impacts and policy implications. *The Extractive Industries and Society*, 6(3), 984–993.

Moore, K. (2005). Thinking about youth poverty through the lenses of chronic poverty, life-course poverty and intergenerational poverty. *Chronic Poverty Research Centre Working Paper*, (57).

Mugenda, O. M., and Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches*. ACTS Press.

Muhamad, G. M. (2023). Data Presentation and Analysis. In *Reducing Natural Resource Dependency for Economic Growth in Resource Rich Countries* (pp. 73-95). Singapore: Springer Nature Singapore.

Mukwada, G., and Chingombe, W. (2021). *Child Labour and Education in Artisanal Mining Communities in Zimbabwe. African Journal of Social Development*, 7(1), 51–70.

Munyoka, E. (2020). Mining and Environmental Rights in Zimbabwe. A Case of Zvishavane District. *Developing Country Studies*, *10*(8), 55-65.

Mutemeri, N., and Petersen, F. (2018). Small-scale mining in Zimbabwe: Historical perspective and contemporary issues. *Journal of the Southern African Institute of Mining and Metallurgy*, 118(3), 285–292.

Ngirandi, M. E., and Njaya, T. (2022). Examining the Challenges and Opportunities for Artisanal Miners in Mt Darwin District, Zimbabwe.

Nkomo, S., and Mpofu, P. (2022). The Impact of Artisanal Mining on Career Development of Adolescents in Zimbabwe. *Interdisciplinary Journal of Rural and Community Studies*, *4*, 36-47.

Nyamombe, B., and Tanyanyiwa, V. I. (2025). Occupational safety and health hazards among artisanal and small-scale gold miners at Mazowe Jumbo Mine, Zimbabwe: A mixed-methods cross-sectional study. *Public Health and Occupational Safety Journal*, *1*(2), 151-162.

O. Nyumba, T., Wilson, K., Derrick, C. J., and Mukherjee, N. (2018). The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods in Ecology and Evolution*, *9*(1), 20-32.

Olsson, L., Opondo, M., Tschakert, P., Agrawal, A., Eriksen, S., Ma, S., ... and Zakieldeen, S. (2014). Livelihoods and poverty. In *Climate Change 2014 Impacts, Adaptation and Vulnerability: Part A: Global and Sectoral Aspects* (pp. 793-832). Cambridge University Press.

Oribhabor, C. B., and Anyanwu, C. A. (2019). Research sampling and sample size determination: a practical application. *Journal of Educational Research (Fudjer)*, *2*(1), 47-57.

Ouma, D. H., Ting, Z., and Pesha, J. C. (2017). Analysis of the Socio-Economic Factors That Contribute to Children's School Dropout in Artisanal Small-Scale Gold Mining Communities of Tanzania. *Journal of Education and Practice*, *8*(14), 71-78.

Roulston, K., and Choi, M. (2018). Qualitative interviews. *The SAGE handbook of qualitative data collection*, 233-249.

Schwartz, F. W., Lee, S., and Darrah, T. H. (2021). A review of health issues related to child labor and violence within artisanal and small-scale mining.

Skauge, B., Storhaug, A. S., and Marthinsen, E. (2021). The what, why and how of child participation—A review of the conceptualization of "child participation" in child welfare. *Social Sciences*, *10*(2), 54.

Smith, A. (2007). Children and young people's participation rights in education. *The International Journal of Children's Rights*, *15*(1), 147-164.

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of business research*, *104*, 333-339.

Spiegel, S. J. (2009). Resource policies and small-scale gold mining in Zimbabwe. *Resources Policy*, *34*(1-2), 39-44.

Thompson, C. A. (2024). *Digging Deeper: How the Sustainability Paradox Entrenches Narratives of'Forgetting Africa'in the Cobalt Mining Sector of Democratic Republic of the Congo* (Doctoral dissertation, University of Otago).

Underdown, A. (2006). *Young children's health and well-being*. McGraw-Hill Education (UK).

UNICEF. (2009). *State of the World's Children: Celebrating 20 Years of the Convention on the Rights of the Child*. Unicef.

UNICEF. (2019). *A Child Rights-Based Approach to Programming.* UNICEF Policy and Practice Series.

Willie, M. M. (2024). Population and target population in research methodology. *Golden Ratio of Social Science and Education*, *4*(1), 75-79.

World Bank. (2019). *2019 State of the Artisanal and Small-Scale Mining Sector*. Washington, DC: World Bank.

World Bank. (2020). *2020 state of the artisanal and small-scale mining sector.* World Bank Publications.

Zermatten, J. (2010). The best interests of the child principle: literal analysis and function. *The International Journal of Children's Rights*, *18*(4), 483-499

Zvarivadza, T. (2018). Artisanal and Small-Scale Mining as a challenge and possible contributor to Sustainable Development. *Resources Policy, 56*, 49-58.

Appendix A: University Research Form

Bindura University of Science Education
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BINDURA UNIVERSITY OF SCIENCE EDUCATION

CHAIRPERSON'S OFFICE

Friday, 17 October 2025

TO WHOM IT MAY CONCERN

Dear Sir/Madam

RE: RESEARCH SUPPORT LETTER FOR SUSTAINABLE DEVELOPMENT STUDENT

This is to confirm that **MADZIMA ADRIAN TAKUDZWA** Registration Number **B222165B** is our fourth-year student doing Bachelor of Science (Honours) Degree in Development Studies (HBSc.DG) at Bindura University of Science Education in the Sustainable Development Department.

In the fourth-year, students are required to do field research which require them to do data collection for their research purposes from various sources as part of their degree programme.

Kindly accord him/her the due cooperation the student truly deserves.

Yours faithfully,

CHAIRMAN
GEOGRAPHY DEPARTMENT
FACULTY OF SCIENCE

Dr. J. Bowora (PhD)
(Chairperson)

Appendix B: Household Questionnaire

Title: Household Survey Questionnaire on the Impact of Artisanal Mining on Children's Well-being in Bindura District

ETHICAL CONSIDERATIONS

1. Participation is voluntary
2. Responses will remain confidential
3. No names are required
4. Information will be used strictly for academic purposes

SECTION A: DEMOGRAPHIC INFORMATION

(Tick or fill in where appropriate)

1. Age: ☐ 18–25 ☐ 26–35 ☐ 36–45 ☐ 46 and above
2. Gender: ☐ Male ☐ Female
3. Level of Education: ☐ No formal education ☐ Primary ☐ Secondary ☐ Tertiary
4. Occupation: ☐ Mining ☐ Farming ☐ Employed ☐ Self-employed ☐ Unemployed ☐ student/child
5. Duration of residence in this community: ☐ Less than 1 year ☐ 1–5 years ☐ 6–10 years ☐ Above 10 years
6. Main source of household income: ☐ Mining ☐ Farming ☐ Formal employment ☐ Informal trade ☐ Other (specify) _____

SECTION B: IMPACTS OF ARTISANAL MINING ON CHILDREN'S WELLBEING

(Objective 1)

7. Are children in your household or who live near you exposed to artisanal mining activities? ☐ Yes ☐ No
8. If your answer is yes how often are children exposed to mining environments? ☐ Daily ☐ Weekly ☐ Occasionally
9. If your answer is yes on 7 what is the nature of the mining exposure?
   ……
10. Have children experienced any health problems related to mining? ☐ Yes ☐ No
11. If your answer is yes, indicate the health problems observed (tick all that apply): ☐ Injuries ☐ Respiratory problems ☐ Skin diseases ☐ Fatigue ☐ Other _____
12. How often do children in your area attend school? ☐ Regularly ☐ Sometimes ☐ Rarely ☐Not at all
13. Have children in your area missed school due to mining activities? ☐ Yes ☐ No
14. Rate the impact of mining on children's psychosocial wellbeing (stress, behaviour, emotions): ☐ Very High ☐ High ☐ Moderate ☐ Low ☐ None

SECTION C: SOCIO-ECONOMIC DRIVERS OF CHILDREN'S INVOLVEMENT

(Objective 2)

15. What is the main economic activity in your household? ☐ Mining ☐ Farming ☐ Employment ☐ Trading ☐ Other _____
16. To what extent do the following factors contribute to children's involvement in mining? (Tick one option for each factor.)

Factor	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Poverty					
Unemployment of parents/guardians					
High cost of school fees					
Family expectations/pressure					
Peer influence					
Lack of alternative livelihood options					
Availability of mining opportunities					

SECTION D: HOUSEHOLD AND COMMUNITY COPING MECHANISMS

(Objective 3)

17. Does your household take measures to protect children from mining activities? ☐ Yes ☐ No
18. If your answer is yes, which strategies are used? (Tick all that apply)
    ☐ Sending children to school
    ☐ Restricting access to mining sites
    ☐ Assigning alternative chores
    ☐ Community awareness programs
    ☐ Other _____
19. In your area, are there community programs that protect children from mining risks?
    ☐Yes ☐ No
20. If your answer is yes, can you name the community programs being implemented?
    ……..

21. If your answer is yes on 19, how effective are these measures? ☐ Very Effective ☐ Effective ☐ Moderately Effective ☐ Not Effective

SECTION E: ADDITIONAL COMMENTS

22. Please provide any additional information or suggestions regarding children's well-being in mining communities:

    ……

    ……

    ……

Thank you for your participation

Appendix C: Key Informant Interview Guide (Individual, in-depth responses)

Title: Key Informant Interview Guide on Child Welfare and Artisanal Mining in Bindura District

ETHICAL CONSIDERATIONS

a) Participation is voluntary
b) Responses will remain confidential
c) No names are required
d) Information will be used strictly for academic purposes

(Objective 1)

1. Can you describe specific cases where children's health has been affected by artisanal mining?
2. How has artisanal mining influenced school attendance and academic performance among children you know?
3. What personal observations have you made regarding emotional or behavioural changes in children exposed to mining?
4. Can you explain the types of risks children face at mining sites based on your experience?

(Objective 2)

5. From your perspective, what are the main reasons children become involved in artisanal mining?
6. How does your household's economic situation influence children's participation in mining?
7. Can you describe how school-related costs affect children's involvement in mining?
8. Are there any family or cultural expectations that influence children's participation?

(Objective 3)

9. What strategies do households use to protect children from mining-related risks?
10. How effective have these strategies been in your experience?
11. What challenges do you face in trying to safeguard children?
12. What additional support would help improve children's well-being?

Appendix D: Focus Group Discussion Guide (Collective/community perspectives)

Title: Focus Group Discussion Guide on Community Perceptions of Artisanal Mining and Children's Wellbeing in Bindura District.

ETHICAL CONSIDERATIONS

a. Participation is voluntary
b. Responses will remain confidential
c. No names are required
d. Information will be used strictly for academic purposes

(Objective 1)

1. As a community, what common health problems are affecting children in mining areas?
2. How does artisanal mining generally affect children's education in this community?
3. What shared experiences exist regarding children's emotional and social wellbeing?
4. What are the most common dangers children face around mining environments in this area?

(Objective 2)

5. What are the common economic challenges faced by households in this community?
6. How do these challenges contribute to children engaging in mining activities?
7. What role does unemployment play in children's involvement in mining?
8. Are there shared community norms that encourage or discourage children's participation?

(Objective 3)

9. What are the common strategies used in this community to protect children from mining risks?
10. How do community institutions (schools, churches, traditional leaders) contribute to child protection?
11. What challenges does the community face in safeguarding children?
12. What collective solutions can be implemented to better protect children?

Appendix E: Child-Friendly Focus Group Discussion (FGD) Guide

Title: Focus Group Discussion Guide on Children's Experiences and Well-being in Artisanal Mining Communities in Bindura District

Ethical Considerations (the researcher to read aloud)

Thank you for joining this discussion.

a. We are here to talk about your experiences living in this community.
b. There are no right or wrong answers.
c. You can speak freely, and you can choose not to answer any question.
d. Everything you say will be kept private.
e. Please respect each other and allow everyone a chance to speak
f. Warm-up rule: Let's listen to each other and not laugh at anyone's answers.

Icebreaker Activity (5 minutes)

Question: Can you tell us your name (or nickname) and one thing you enjoy doing every day?

SECTION A: CHILDREN'S EXPOSURE TO MINING (Objective 1)

Discussion Questions:

1. What activities usually happen in the mining areas near your home?
2. Do children go to these mining places? Why or why not?
3. What do children usually do when they are there?
4. How often do children visit or stay at mining sites?
5. Who do they go with to these mining sites?
6. Do they go before or after school?

SECTION B: HEALTH AND WELLBEING (Objective 1)

7. What are some good things and bad things about living near mining areas?
8. Have you seen or experienced any injuries or sickness related to mining?

9. How does being around mining activities make children feel?

SECTION C: EDUCATION (Objective 1 & 2)

10. Do children in this area go to school regularly? Why or why not?
11. What makes it easy or difficult for children to attend school?
12. Do mining activities affect school attendance or performance? How?

SECTION D: REASONS FOR CHILDREN'S INVOLVEMENT (Objective 2)

13. Why do some children get involved in mining activities?
14. Do families or friends influence children to go to mining areas?
15. Are there times when children feel they must help their families through mining?

SECTION E: COPING AND PROTECTION (Objective 3)

16. What do parents or adults do to keep children safe from mining dangers?
17. Are there any rules in your community about children going to mining areas?
18. What do you think can be done to protect children from harm?

SECTION F: CHILDREN'S SUGGESTIONS

19. What would make life better for children living in this community?
20. What advice would you give to adults about protecting children?

Closing

a) Thank you for sharing your ideas.

b) Your views are very important and will help improve children's lives.