

# Exploration of Socio-Economic and Political Conflicts Emanating from Unregulated Mining Activities in Chingola, Zambia

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Publication Date: 2026/03/12

**Abstract:** Unregulated mining in Zambia poses significant economic, social, and environmental threats. The Copperbelt region is particularly affected, with incidents like gang fights and mining collapses. Despite government awareness, little action has been taken, and unregulated mining undermines sustainable development and environmental conservation. A lack of data hinders effective solutions. Therefore, it against this background that this study has been developed to explore the socio-economic and political conflicts emanating from unregulated mining activities in chingola, Zambia. The study employed a qualitative methodology with a Case study design to explore the Socio-economic and Political conflicts emanating from unregulated Mining Activities in Chingola District. The findings indicated that while mining provided temporary income opportunities, it destabilized traditional livelihoods such as agriculture and small-scale businesses, contributing to financial insecurity and widening income disparities. Approximately 24% of miners reported unstable earnings, reinforcing wealth concentration among large-scale mining stakeholders. Weak governance and widespread corruption exacerbated the issue, as political actors prioritized financial gain over effective regulation, allowing illegal mining operations to persist unchecked. The absence of strict policy enforcement enabled mining businesses to evade taxation, with 40% of residents expressing frustration over the lack of accountability. The environmental consequences of unregulated mining were equally concerning. The findings revealed significant environmental degradation, including land degradation, deforestation, water contamination, and biodiversity loss, negatively affecting agricultural productivity, food security, and community health. Social conflicts were also prevalent, with community grievances over inequitable resource distribution, exclusion from decision-making, and feelings of abandonment by government authorities. The study emphasized the need for improved governance frameworks, enhanced environmental protection policies, and economic diversification to reduce dependency on extractive industries, contributing to broader discussions on resource governance, social equity, and sustainable development in mining communities.

**Keywords:** Unregulated Mining, Socio-Economic Impact, Political Conflict, Environmental, Community Conflict, Biodiversity Loss.

**How to Cite:** Amon Chisenga; Francis Simui (2026) Exploration of Socio-Economic and Political Conflicts Emanating from Unregulated Mining Activities in Chingola, Zambia. *International Journal of Innovative Science and Research Technology*, 11(3), 339-352. <https://doi.org/10.38124/ijisrt/26mar277>

## I. INTRODUCTION

Mining activity has existed since the beginning of human society, and minerals have contributed to the development of human civilization since the Stone Age (World Bank, 2011). The mining industry impacts directly on the macro-economy by improving infrastructure, increasing employment, developing rural communities, and enabling new spin-offs and downstream businesses (Suglo et al., 2021). For example, the prospering economy of India is supported by abundant reserves of several key minerals and

their small- to large-scale mining operations (Azumah, Baah and Nachinaab, 2021).

The Zambian mining industry began in the early 1920s with the discovery of copper in the Copperbelt Province. Initially, local communities engaged in small-scale mining, using copper primarily for barter (Sikam, Mwanza, and Mweemba, 2014). The arrival of the British, attracted by these mineral resources, led to indirect colonial rule in 1889 and direct rule from 1924. During this period, British companies, notably the British South African Company,

controlled the Copperbelt and drove significant investment, transforming Zambia into a major global copper producer by the mid-20th century (Lindahl, 2016). By 1957, mining accounted for over half of Zambia’s economic output, largely controlled by Roan Selection Trust and Anglo-American Corporation (Lindahl, 2016).

After Zambia’s independence in 1964, the government nationalized the mining sector in 1968 due to disputes over inadequate foreign investment and high royalty rates (Werner, 2016). The state, through Zambia Consolidated Copper Mines (ZCCM), took a 51% share, but disagreements over royalties persisted, leading to decreased investment (Sikam, Mwanza, and Mweemba, 2014). The economic fortunes of Zambia closely followed global copper prices; from 1974 to 1994, falling prices led to economic decline, widespread poverty, and high national debt (Ferguson, 1999). By 1997, Zambia’s external debt reached \$6.7 billion, far exceeding its per capita income (Ferguson, 1999).

Facing mounting debt and pressure from the International Monetary Fund (IMF) and World Bank, Zambia undertook privatization in the 1990s, offering favorable terms to foreign investors, including low royalty rates and tax incentives (Ng’ambi, 2015). However, after privatization, copper prices surged, yet Zambia’s share of mining revenues remained minimal due to these agreements (Fraser and Lamer, 2010). The mining industry has transitioned through three main ownership phases: colonial private ownership, post-independence nationalization, and 1990s privatization

(Makando et al., 2014). While privatization brought some investment, it also resulted in job losses, weakened labor protections, and declining living standards for mining communities (Werner, 2016). The overall impact on Zambia’s socio-economic development remains contested, highlighting the complex legacy of mining governance in the country.

The empirical evidence of privatization’s benefits includes increased Foreign Direct Investments (FDI), increased production and direct employment, improved infrastructure and technological processes, economic upturn and mining industries were the main pivotal contributor. At the end of privatization in 2013, copper production increased to 763,000 tons, direct employment increased to 90,000, and national revenue increased pushing Zambia to be one of the fast-developing economies in Africa (Sikam, Mwanza, and Mweemba, 2014). Figure 2 and 3 shows mining contributions to Zambia’s revenue and fluctuated copper production since colonial period till the end of privatization. Post-privatization, 28 percent of total revenues came from mining taxes and constituted almost 78 percent of export of which 96.5 percent is from copper and 61.7 percent from 61.7 percent of Foreign Direct Investments (FDI) (Werner, 2016). A clear perception that mining industries are one of Zambia’s important engines that drives and enforce development. However, maybe much more benefits can be extracted from mining industries that not only benefits the significant few (Sikam, Mwanza, and Mweemba, 2014).

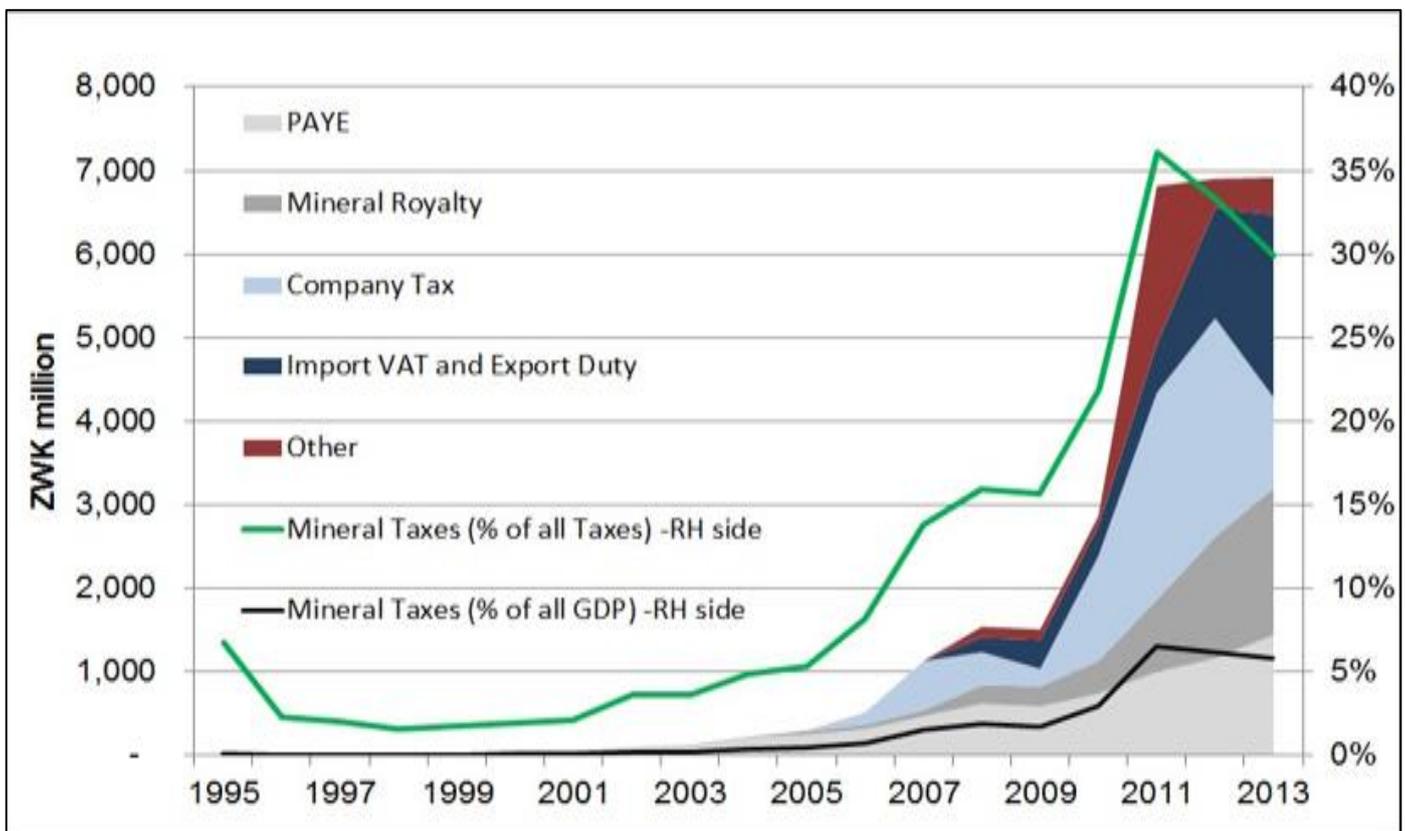


Fig 1 Mining Contributions to Zambia’s Revenue (Sikam, Mwanza, and Mweemba, 2014).



Fig 2 Copper Production Fluctuation from Colonial Office to Privatization (Sikam, Mwanza, and Mweemba, 2014).

The Government of Zambia recognized the significant potential of both large- and small-scale mining sectors to generate employment and wealth for the country. In 1995, the government enacted a new Mining Act, which prioritized the privatization of mines, liberalization of fiscal policy, and the provision of tax concessions to mining companies. This was complemented by a pragmatic mineral policy aimed at enhancing investment and ensuring the development of a self-sustaining minerals-based industry.

Key objectives of the government’s mining policy include making the private sector the principal producer and exporter of mineral products, encouraging the development of small-scale mining, promoting gemstone mining with liberalized marketing arrangements, supporting the exploration and exploitation of industrial minerals, and reducing ecological and health risks associated with mining (Haloba, 2020). The government also streamlined bureaucratic procedures for both foreign and local investors, which resulted in many Zambians acquiring mining plots and licenses. While the surge in small-scale mining has been welcomed for its economic potential, it has also increased environmental pressures, leading to land degradation.

Despite Zambia having some of the world’s largest copper reserves, it remains one of the poorest countries (Haloba, 2020). Many mineral-dependent countries, including Zambia, suffer from the "resource curse," where abundant natural resources do not translate into diversified economic growth or significant poverty reduction (Singh and Bourgooin, 2013). Governance challenges persist, particularly in areas like Chingola District, where private sector dominance has led to environmental pollution and the marginalization of local communities (Haloba, no date; Dziwornu, 2016; Wakio, 2020; Suglo et al., 2021). Although mining in Chingola District could serve as a backbone for

local economic development, its potential remains largely unrealized, with surrounding communities experiencing limited improvement in living standards (Ibid).

Unregulated mining activities across Africa, including Zambia, have had negative impacts, especially on residents of mining communities (World Bank, 2011). Communities near mines have lost significant tracts of arable land, with many farmers abandoning agriculture for illegal mining. Unregulated mining has also contributed to deforestation and, due to unsafe conditions, has led to accidents and loss of life (Dziwornu, 2016; Wakio, 2020; Suglo et al., 2021). Despite the adoption of new equipment and technology in illegal mining, living conditions in these communities have not improved (Azumah, Baah and Nachinaab, 2021). Negative consequences include loss of jobs, farmland, and water pollution, with Zambia, South Africa, and other African countries continuing to suffer social, economic, and political repercussions from unregulated mining (ZEMA, 2018; Haloba, no date; Dziwornu, 2016).

While small-scale and artisanal mining offer opportunities for individuals with limited resources, unregulated and illegal mining activities remain a significant income source for those lacking proper equipment (Boateng et al., 2014). This issue has become critical in Zambia’s mining regions, resulting in multiple adverse effects on society, including environmental degradation, socio-economic challenges, and political issues. The prevalence of unregulated mining leads to lost government revenue, as minerals are often smuggled out of the country, and the government ultimately bears the costs associated with the consequences of unregulated mining (Singh, 2016; Wakio, 2020; ZEMA, 2018). It is against this background that this study was developed to provide an explanation of Social

economic and Political conflicts emanating from unregulated Mining Activities in Chingola, Zambia.

➤ *Statement of the Problem*

Zambia faces major development challenges, including economic structural issues, inadequate public goods, and high poverty levels (Dziwornu, 2016; Singh, 2016; Suglo et al., 2021). Small-scale mining was introduced to address these challenges, but unregulated mining activities have surged dramatically in recent years (Mutambo, 2020; UN, 2020; Daily Nations, 2021). The rise in illegal mining has led to significant negative impacts: loss of government revenue, reduced tax income, lost employment opportunities, capital flight, social instability, and competition undermining legal mining operations (Dziwornu, 2016; Mulenga, 2019; Mutambo, 2020; Wakio, 2020). In the Copperbelt, unregulated mining has caused gang violence, mining accidents, deaths, and heightened insecurity (Haloba, no date; Interpol, 2022). Despite official concern, little has changed, and these activities threaten sustainable development and climate objectives. Critically, there is a lack of research on the socio-economic and political conflicts driven by unregulated mining in Chingola, Zambia, making this study essential.

➤ *Aim of the Study*

This study is aimed at exploring the socio-economic and political conflicts emanating from unregulated mining activities in Chingola, Zambia.

➤ *Specific Objectives*

The following specific objectives will guide the study:

- To establish the factors associated with unregulated mining activities in Chingola District.
- To explore strategies in use to mitigate Social-economic and Political conflicts emanating from unregulated Mining Activities in Chingola District.

➤ *Theoretical Framework*

This study will be based on two theories, the sustainable livelihood framework and the conflict theory.

• *Sustainable Livelihoods Framework (SLF)*

The Sustainable Livelihoods Framework (SLF) is a tool used to understand and analyze the livelihoods of people, especially the poor and vulnerable (DFID, 1999, p. 1). It helps identify the factors that constrain or enhance livelihood opportunities and shows how they relate to one another (DFID, 1999, p. 1). The framework focuses on five types of capital assets: human, social, natural, physical, and financial. These capital assets are interconnected and interact to shape livelihood outcomes (Chambers & Conway, 1992). For instance, human capital, such as skills and knowledge, can be used to access physical capital, like equipment and infrastructure. Similarly, social capital, including social relationships and networks, can provide access to financial capital, such as credit and loans. In the case of unregulated mining activities in Chingola, the SLF can be used to assess how these activities impact the livelihoods of local communities. The Sustainable Livelihoods Framework (SLF)

is a conceptual framework used to understand and analyze the livelihoods of individuals, households, and communities (DFID, 1999). The framework focuses on the five types of capital assets that are essential for achieving sustainable livelihoods: human capital, social capital, natural capital, physical capital, and financial capital.

Thus, by exploring and analyzing the relationships between these capital assets, the SLF provides a framework for identifying the constraints and opportunities that affect livelihoods and for developing strategies to improve livelihood outcomes. This framework can be applied to various contexts, including the analysis of unregulated mining activities in Chingola.

• *Conflict Theory*

Conflict Theory is a sociological perspective that emphasizes the role of power, inequality, and social conflict in shaping social structures and relationships (Marx & Engels, 1848, p. 10). It argues that society is characterized by various inequalities and conflicts that arise due to differences in power, resources, and social status (Collins, 1975, p. 25). Conflict theorists believe that social change is driven by these conflicts, and they often focus on issues such as class conflict, racial inequality, and gender discrimination. In relation to your study, Conflict Theory can help explain the socio-economic and political conflicts arising from unregulated mining activities in Chingola. For instance, unregulated mining might lead to unequal distribution of resources, where powerful mining companies benefit at the expense of local communities (Bury, 2004, p. 120). Conflict Theory is a sociological perspective that emphasizes the role of power, inequality, and social conflict in shaping social structures and relationships (Marx & Engels, 1848). The theory argues that society is characterized by various inequalities and conflicts that arise due to differences in power, resources, and social status (Collins, 1975). Conflict Theory emphasizes the importance of understanding the relationships between different social groups and how these relationships are shaped by power dynamics (Bury, 2004). The theory identifies several key concepts that are relevant to understanding conflict, including power, inequality, and social conflict. Thus, the conflict Theory provides a framework for understanding the root causes of social conflict and for developing strategies to address these conflicts and promote social change. This framework can be applied to the analysis of unregulated mining activities in Chingola, where power imbalances and social conflicts are likely to arise.

Both the Sustainable Livelihoods Framework and Conflict Theory can be applied to understand the impacts of unregulated mining activities in Chingola. The SLF can be used to analyze the impacts of unregulated mining on the livelihoods of local communities, including the depletion of natural resources, disruption of social networks, and health risks. Conflict Theory will be used to analyze the power dynamics and social conflicts that arise from unregulated mining activities. By understanding the relationships between different social groups, including mining companies, local communities, and government agencies, Conflict Theory can

provide a framework for addressing the root causes of social conflict and promoting social change.

## II. LITERATURE REVIEW

### ➤ *Factors Associated with Unregulated Mining Activities and Its Impact to the Society*

Although unregulated mining has no universal definition, INTERPOL defines it as an umbrella term covering both illegal extraction and trade of minerals, including the unregulated mining use of toxic chemicals (such as cyanide and mercury) in mining activities (Dziwornu, 2016; Singh, 2016; Widana, 2020; Interpol, 2022). unregulated mining has evolved into an endemic and lucrative enterprise in several regions across the globe, with seriously damaging consequences in terms of Socio-economic development, due to the high profits generated from illicit assets of approximately 12-48 billion USD per year this has made many youths to abandon legal ways of mining operations for high returns unregulated mining thus, undermining government revenues (Interpol, 2022). Kervankiran, (2018), Mining subsector has been marred by controversies mainly due to its threat to sustainable development. This paper provides some insights into the inextricable linkage between sustainable development and illegal gold mining popularly referred to as unregulated mining activities and examines the effectiveness of political response and processes at the local and national level. While acknowledging the incommensurable role of the mining sector in poverty reduction through employment generation, the adverse impact on the environmental, economic and social fabric of society cannot be ignored. Notwithstanding this hard evidence at hand, successive governments are handicapped to reverse the devastating effects partly due to the complicated and multifaceted nature of the small-scale mining sub-sector. Semi-structured interviews were conducted in four illegal mining communities comprised 35 illegal miners and officials' task to monitor mining activities.

In Africa, Amstrong (2008) reports that unregulated mining has a very extensive history that dates back at least to the fifteenth century when the Europeans, starting with the Portuguese and followed later by the Dutch and the English, were first drawn to the territory they called the "Gold Coast" by the trade in gold and spices. The British and a small number of other foreign investors controlled the mining industry during the colonial age, and most Africans were absolutely excluded from the tenure structure of the mining industry.

The industry was very vibrant during the pre-independence period, thus Ghana accounted for 35% of total world gold output between 1493 and 1600, nevertheless its portion of world mineral output declined over subsequent years. The post-independence period was marked by state ownership of mineral resources. The period up to 1986 of the industry was largely characterized by unproductive, except for a few spikes recorded immediately after independence and in the early 1970's (Akabzaa & Darimani, 2001).

According to Suglo, Effah, Acheampong et al., (2021), review study on the effects of Illegal Mining on the Environment, Economy, and Agricultural Productivity in Ghana where they employed key word findings at the initial stage to obtain relevant articles; peer-viewed and non-reviewed articles, both published and non-published and other articles from reputable media sources. This was the review paper on the effects of illegal mining on the environment, the economy and agricultural productivity in Ghana. The review employed key word findings at the initial stage to obtain relevant articles; peer-reviewed and non-reviewed articles, both published and non-published and other articles from reputable media sources. The findings from the study revealed that in Ghana, just like most African countries, artisanal and small-scale mining has contributed positively to the economy through job creation, increased mineral output, specifically gold, and concurrently increased the GDP of the country. Nonetheless, the downsides of unregistered and unregulated small-scale mining activities overshadow the benefits derived from it. Notable negativities associated with artisanal and small-scale mining include: loss of mineral revenue through smuggling, food insecurity, destruction to surface and underground water through toxic contamination and pollution caused by mud and sediments, air and noise pollution and destruction of biodiversity, including the natural flora and fauna and water species. Death, injuries, respiratory and skin diseases, noise-induced hearing loss, physical and psychological stress, malaria, and HIV are among the common legacies of illegal mining. Among other recommendations, the study suggests that perpetrators found in illegal mining activities should be duly dealt with according to law. Also, small-scale mining concessions duly registered and regulated should be demarcated to avoid encroachment into forest reserves, farmlands, and river courses (Ibid).

It is worthy to note that activities of small-scale mining are commonly done on the immediate surface or near surface deposits, comparatively with little waste or overburden, simple metallurgy and with easy access. Most at times, as indicated by Hilson (2001), galamsey entails the use of mercury for processing. In the view of Berger (1982), the activity is characterized by one-man operations with various forms of leasing, where miners either share the profit from the concession or sell the minerals to other small scale mining owner of other concession at an agreed price or in the form of joint-venture and cooperatives. Hentschel et al. (2003) conceptualized artisanal and small-scale mining as mining by individuals, groups, families, or cooperatives with minimal or no mechanization, which is usually done in the informal sector of the market. For the purposes of taxonomy, small-scale miners are artisanal miners who are licensed to operate on a small piece of land and who are required to market their produce through the Precious Minerals Marketing Company (PMMC) or designated agents associated with PMMC and illegal miners unregulated mining on the other hand, practice their trade without any regularization or license from the regulatory agencies (Nyame et al., 2007).

In Zambia although the ideal of privatization was made to reduce Government participation in running business and

was made in good faith, the initial implications resulted in massive loss of jobs in mining companies and other related industries (Haloba, no date; Mulenga, 2019; Wakio, 2020; Widana, 2020). As a result, most families were deprived with income and had to resort to other forms of survival including venturing into small scale unregulated mining in search of all sorts of stones in various parts of the country (Haloba, no date; Mulenga, 2019; Wakio, 2020; Widana, 2020). Some people were lucky to report discoveries and this further encouraged other people to venture into mining. The result was a 'gold rush' and the beginning of increased unregulated mining activities in Zambia.

#### ➤ *Economic Effects of Unregulated Mining*

Unregulated mining also comes with economic returns, especially to the poor in rural communities where such activities take place. Yaro (20216) and Bagyina (2014) described Unregulated and illegal mining as poverty-driven venture practiced in several developing economies where a more significant proportion of the population is poorly educated with few employment opportunities. As a result, these locals who see the prospects in illegal mining embrace it at their very own risk without careful analysis and consideration of the long-run implications. From the perspective of economic gains, Boadi et al., (2016) in their research "An analysis of illegal mining on the shelterbelt forest reserve, Ghana: Implications on community livelihood," revealed that illegal mining operations within the fringe communities led to an increase in income among indigenes by 13%, raised employment opportunities by 6.7%, and increased market operations by 2%. Miners earned a cash income of between \$2.9 –\$22.9 per day. The artisanal and small-scale mining industry in South Africa constitutes about 10% of the country's gold production and employs approximately 30,000 people, including women and children. In Mali, the illegal mining sector is said to employ about 200,000 people who are engaged in gold washing and other direct fieldwork or related activities. In Sudan, earnings from illegal gold mining were recorded between SDG1000-2000 (\$100-200) per month for 48% of actors, with only 4% earning more than SDG3000 per month ( Singh, 2016; Suglo et al., 2021).

In recent years, the developing world has experienced a tremendous increase in the number of people engaged in small scale mining (Haloba, no date). In Zambia, for example, this increase can be attributed to both negative and positive factors (Dziwornu, 2016). Negative factors include unregulated or poorly regulated entry into this sector which has resulted in even those without any mining knowledge or working capital to venture into business, illegal mining such that many operators are working without documents and licenses, and lack of poor regulatory policies for small scale mining sector. Positive factors include: creation of employment which to a certain extent has led to reduction of poverty levels among local communities and added income to the Government treasury. Despite these positive factors, this sector has also become a source of environmental concern. Abandoned quarries, open pits, trenches to mention but a few, have been left un-reclaimed (Dziwornu, 2016; Widana, 2020). Forests have been depleted making it easier

for run offs and toxics to find their way in main streams. Such examples indicate the likely irreversible degradation of natural resources the sector is likely to inflict on the environment.

#### ➤ *Ways of Managing Environmental Degradation in Zambia Due to Small Scale*

Several studies have revealed that there are many measures taken to mitigate effects of mining on people's welfare. A key strategy adopted by mining companies to manage social impacts are programs to support community development (Franks, 2010). Social impacts refer to a multifaceted group of matters, influencing the everyday lives of people (Tiainen, 2012). This may include health and education programs, or support of organizations such as schools, clubs, and societies. Moomen et al., (2016) state that as relocations of communities are carried out, there is need to have a foresight of mine expansion hence communities need to be beyond a 2km buffer. The mining industry tend to follow the World Bank Group's social safeguards for involuntary resettlement, which emphasize that resettled communities should at least be as well off as before in terms of local production systems and income opportunities (Conde and Le, 2017). Some towns which had a 'boom' of mining activities on the Copperbelt in the past have practically little to point at in terms of the benefits the host communities have been left with after mining activities ceased. For example, subsistence farmers displaced by mining activities became particularly economically vulnerable since their land – their only source of financial capital and income generation – is no longer accessible to them and they have no welfare safety net to draw on (Mwitwa et al., 2012; Mususa, 2012; Horsley et al., 2015). In Zambia, the principal legislation governing environmental management is the Environmental Management Act. The Act is an umbrella law which stands over all other environmental legislation in Zambia (Lindahl, 2014). Through the Act, the Environmental Council of Zambia was renamed to ZEMA which now is mandated to ensure the sustainable management of natural resources and protection of the environment.

The Government of Zambia through the Mine Sector Diversification Program (MSDP- a program funded by the European Union), has been running a series of training workshops in 'Small Scale Mining Techniques and the Environment' in conjunction with the School of Mines at the University of Zambia. The results of such trainings have already started bearing fruits as more and more small-scale miners are coming to appreciate the importance of environment and sustainable mining. The Government of Zambia has prioritized four sectors of development namely: Mining, Agriculture, Tourism and Health. In mining, the emphasis is no longer only on large scale mining but also on small scale mining. Furthermore, the needs of the small-scale miners such as purchase of proper mining tools and working capital are being addressed by Government through their Mining Associations some of which are already receiving funding. It is hoped that through such structures, small scale miners will be able to adopt environmentally and proper mining techniques). Although small scale miners do not need to prepare environmental impact assessment reports prior to

commencement of their operations, they are being encouraged to take measures to mitigate or reduce the negative impacts of mining activities on the environment. This is being done through the Mine Safety Department in the Ministry of Mines and Mineral Development and the Environmental Council of Zambia (ECZ).

#### ➤ *Research Gap*

Despite extensive research on unregulated mining and its socio-economic and environmental impacts, significant gaps remain in the literature. Limited exploration exists regarding the socio-political conflicts arising from unregulated mining activities, including disputes over resources, governance failures, and tensions among stakeholders. While much of the research focuses on countries like Ghana and South Africa, there is a lack of country-specific analysis for Zambia, particularly in regions like Chingola. Additionally, there is insufficient qualitative data capturing the perspectives of those directly involved in or affected by unregulated mining, such as miners, local communities, and law enforcement. The influence of global economic trends and climate action initiatives on the rise of unregulated mining remains underexplored. Lastly, while the need for regulation is recognized, few studies provide practical, evidence-based strategies to mitigate the socio-economic and political tensions caused by these activities.

### III. METHODOLOGY

#### ➤ *Research Design*

The study utilized a qualitative methodology with a case study design to explore the socio-economic and political conflicts arising from unregulated mining activities in Chingola District. The qualitative approach emphasizes words rather than quantification in data collection and analysis (Bryman, 2012). Its primary strength lies in the depth it brings to the exploration of complex social phenomena (Cleary et al., 2014). Qualitative research is typically inductive, constructionist, and interpretivist (Bryman, 2012), generating theory from the data rather than testing pre-existing hypotheses. The interpretivist epistemology focuses on understanding the social world through the perspectives of its participants. The constructionist ontology suggests that social reality is created through interactions rather than existing as an objective entity. This approach was chosen to obtain in-depth insights into human experiences and observations regarding the impacts of unregulated mining in Chingola District, Zambia. It respects participants' subjective meanings, actions, and experiences and typically occurs in natural settings, drawing on multiple data collection methods (Marshall & Rossman, 2014). The research design was emergent and evolving, fundamentally interpretive, and holistic in addressing the complexity of the social world (Cleary et al., 2014), and Secondary data sources, such as reports, articles and books were also reviewed.

#### ➤ *Study Setting*

The study was conducted in Chingola District, Zambia, a region significantly affected by both regulated and unregulated mining activities. Known for extensive copper mining, Chingola's socio-economic and environmental

conditions are largely shaped by mining. The research was focused on areas directly impacted by mining, including Senseli open-pit mines, Black Mountain, and residential wards such as Mushishima, Kabungo, Chiwempala, and Chiti Mukulu. These locations were selected due to their exposure to environmental degradation, health risks, and socio-economic disruptions. The study aimed to capture the lived experiences of communities and stakeholders affected by mining-related conflicts.

#### ➤ *Target Population*

The target population comprised individuals and groups directly or indirectly affected by mining activities in Chingola District. This included mine workers from both regulated and unregulated operations, community members from affected wards, environmental experts from the Zambia Environmental Management Agency (ZEMA), and local government officials from Chingola District Administration. Key informants with specialized knowledge or firsthand experience also contributed in-depth qualitative insights. Purposive sampling ensured participants had relevant knowledge and experience, allowing for a comprehensive understanding of the socio-economic and political conflicts linked to unregulated mining.

#### ➤ *Sample Size*

The sample size for this study was 25 participants. This is consistent with qualitative research, which prioritizes depth, richness, and contextual understanding over statistical generalizability (Cleary et al., 2014). Guest, Bunce, and Johnson (2006) suggest that data saturation where no new themes emerge can often be achieved with as few as 12 to 25 purposively sampled participants, especially in homogeneous groups. Creswell (2013) notes that smaller, well-selected samples allow for in-depth exploration. Theoretical sampling, as proposed by Glaser and Strauss (1967), supports continuous refinement of data collection as themes emerge. In this study, 25 purposively and theoretically sampled participants provided the necessary information for thematic analysis, facilitating comprehensive understanding of the socio-economic and environmental impacts of unregulated mining in Chingola District.

#### ➤ *Sampling Method*

Purposive sampling was the primary technique, centering the research questions in participant selection (Bryman, 2012). Snowball sampling was also used, with initial participants referring others with relevant experiences. Non-probability sampling ensured deliberate selection of individuals with necessary knowledge, including key informants such as mine workers, nearby residents, ZEMA environmentalists, and district administration representatives. Convenience sampling was employed during community interviews, relying on participant availability and accessibility. Sampling was conducted at two levels: first, the selection of context/area, and then participant selection within those areas.

#### ➤ *Sampling of Participants*

Participants were sampled to represent the population under consideration (Bryman, 2012). In this research,

participants from Senseli and Black Mountain and residents from Mushishima, Kabungo, Chiwempala, and Chiti Mukulu Wards were interviewed. Key informants were selected for their knowledge or experience, typically chosen sequentially and studied intensively (Cleary et al., 2014). Selection depended on the information needed, research purpose, and credibility requirements. Senseli mine workers, ZEMA experts, and Chingola residents provided insights into working conditions and the impacts of mining. Key informants were expected to generate focused, rich information for a convincing account of the phenomenon (Curtis et al., cited in Cleary et al., 2014).

➤ *Data Generation*

Multiple qualitative data collection instruments were used, including direct and indirect observation and in-depth interviews. Participant observation allowed researchers to understand participants' motives and beliefs. Three types of interviews were utilized: structured, semi-structured, and unstructured (Gill et al., 2008). Structured interviews involved predetermined questions for survey purposes. Semi-structured interviews allowed for flexibility and exploration of emergent themes (Bryman, 2012; Gill et al., 2012). Both types were used with residents and mine workers, while key informants were interviewed using semi-structured formats. A focus group with mine workers involved in unregulated mining was also conducted (Gill et al., 2012).

➤ *Credibility of the Study*

Credibility was achieved through prolonged engagement with participants, persistent observation, triangulation of data sources and methods, and member checking to validate interpretations. Reflexivity and a detailed audit trail further strengthened the trustworthiness of the findings, ensuring the study accurately reflected participants' experiences.

➤ *Data Analysis*

Thematic analysis was used for qualitative data, involving cleaning and coding of data to identify common themes and objectives. The process was supported by Microsoft Excel 365, with results presented in tables, charts, graphs, and figures.

➤ *Trustworthiness*

Trustworthiness was established using triangulation to reduce investigator bias (Shenton, 2004), detailed

methodological description, systematic coding, and transcription techniques. Guba's (1981) constructs addressed credibility, transferability, dependability, and confirmability. Sufficient contextual detail was provided to enable transferability, and measures were taken to ensure findings reflected participants' data rather than researcher bias (Shenton, 2004; Dziwornu, 2016; Interpol, 2022).

➤ *Ethical Considerations*

An introductory letter from the University of Zambia, in collaboration with the University of Zimbabwe, was presented to relevant organizations for research clearance. Ethical guidelines ensured no harm to participants (Bryman, 2012), with transparency regarding interview duration, locations, and venue choice. Permissions were obtained from institutions, and participants were informed about the study's purpose, confidentiality, and use of data. Informed consent was obtained and renegotiated as needed. Ethical dilemmas, such as handling contradictory information or participant reluctance, were navigated with respect and transparency (Sanjari et al., 2014).

**IV. RESULTS**

➤ *Demographic Overview*

The study's participant profile reflected a diverse range of ages, genders, and occupations, which enriched the analysis of unregulated mining in Chingola District. Younger participants (12%) were primarily interested in mining for its economic opportunities, while middle-aged groups (36%) emphasized financial stability and career progression. Older participants (12%) focused more on governance and environmental consequences. Gender distribution revealed that men (40%) predominantly occupied direct mining and leadership roles, underscoring the male-dominated nature of the sector, whereas women (20%) were mostly engaged in supportive or indirect economic activities related to mining. Occupationally, the sample included miners (24%), small business owners (16%), farmers (8%), and unemployed individuals (12%), each group presenting distinct concerns ranging from hazardous working conditions and unstable incomes to agricultural decline and the hope for new economic opportunities. This demographic diversity provided a comprehensive foundation for understanding the multifaceted impacts and perceptions surrounding unregulated mining activities.

Table 1 Demographic Distribution of Participants

Demographic Category	Group/Range	Frequency	Percentage
<b>Age</b>	18-25 years	3	12%
	26-35 years	4	16%
	36-45 years	5	20%
	46-55 years	3	12%
<b>Gender</b>	Male	10	40%
	Female	5	20%
<b>Occupation</b>	Miner	6	24%
	Small Business Owner	4	16%
	Farmer	2	8%
	Unemployed	3	12%

➤ *Factors Associated with Unregulated Mining Activities*

The study results from compiled from thematic analysis of qualitative data found that unregulated mining in Chingola District is driven by several socio-economic, political, and environmental factors, significantly impacting local communities. The lack of clear government guidelines (42%) has allowed mining activities to persist without regulation, contributing to environmental degradation and resource mismanagement. Corruption among officials (40%) has further hindered enforcement, as political interests often take precedence over legal accountability. Environmental factors (60%), including deforestation, soil erosion, and water contamination, have severely disrupted ecosystems, with 48% of residents reporting polluted water sources and declining agricultural productivity. Poverty (48%) and

economic instability (38%) have led many individuals to rely on informal mining as their primary source of income, despite its inherent risks and unpredictability. Wealth inequality (35%) continues to widen, as corporate entities profit disproportionately compared to local miners. The lack of employment opportunities (45%) has left many residents vulnerable, forcing them into unstable mining jobs, where 30% of workers experience fluctuating wages and unsafe working conditions. Additionally, social conflicts over resource access (25%) have emerged between informal miners, businesses, and communities, intensifying tensions over land ownership and economic exclusion. Collectively, these factors underscore the urgency for regulatory reforms, stronger enforcement mechanisms, and sustainable economic policies to mitigate the adverse effects of unregulated mining.

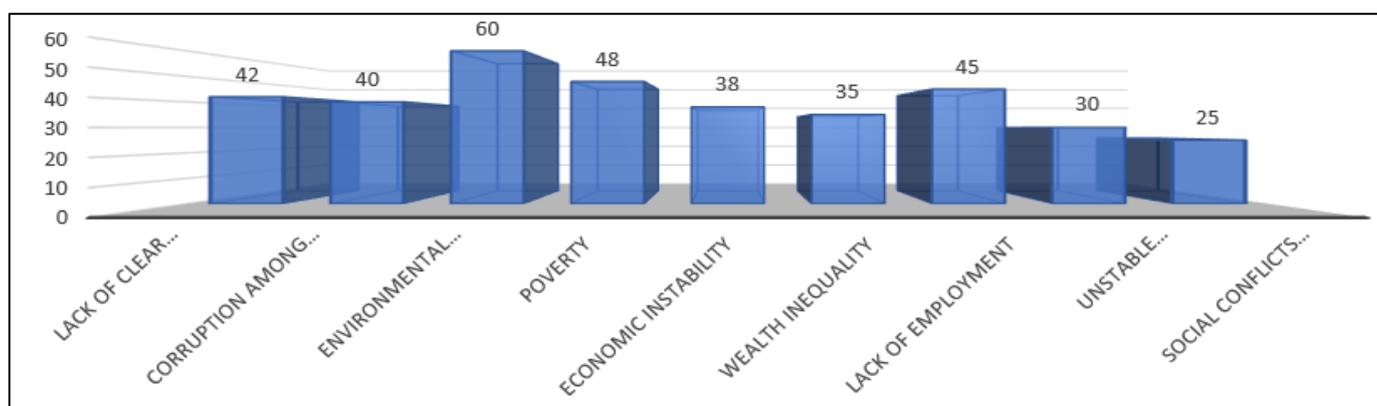


Fig 1 Factors associated with unregulated mining activities

➤ *Perceptions of Unregulated Mining in Chingola*

Residents of Chingola expressed concerns about the socio-economic effects of unregulated mining and the lack of government intervention in addressing its consequences. Many felt abandoned, believing that the wealth generated from mining benefited outsiders such as large companies and politically connected individuals more than the local communities. With weak enforcement mechanisms in place, affected residents struggled to receive compensation for environmental destruction and health risks linked to mining activities.

• *Community Frustrations*

Locals voiced frustrations over mining firms' negligence and the economic disparities within the district. While mining created income opportunities, many community members felt excluded from the actual profits, with only a few individuals benefiting while the majority endured environmental degradation and economic instability. A community elder stated, "We see trucks leaving with our resources, yet our roads are in terrible shape, and people struggle to get clean water."

Table 2 Community Frustrations and Concerns

Major Concern	Findings
<b>Lack of accountability</b>	Mining firms often operated without providing proper compensation to affected locals, despite causing significant environmental and social damage. A Chingola resident lamented, "They destroy everything but don't help us."
<b>Economic disparities</b>	The wealth generated from mining did not translate into tangible benefits for the broader community, deepening financial gaps between miners, business owners, and struggling residents. A small business owner argued, "Mining should help the town, not just a few people."

The general sentiment among Chingola residents indicated that unregulated mining created economic divides while failing to address local development needs. Many individuals believed that government officials and mining operators prioritized profit over community welfare, leaving residents to deal with the environmental, health, and financial consequences of mining. Calls for accountability, fair wealth

distribution, and improved infrastructure grew, reflecting widespread dissatisfaction with the current state of mining governance.

➤ *Strategies Used to Mitigate Socio-Economic and Political Conflicts*

Table 2 summarizes the strategies reported by participants to address socio-economic and political conflicts from unregulated mining. The most cited approach was community sensitization (mentioned by 11 out of 25 participants, or 44%), featuring public meetings and awareness campaigns to inform residents about mining risks and their rights. Multi-stakeholder dialogues, involving regular forums among various local actors, were highlighted by 9 participants (36%) as a means to foster communication and resolve disputes. Strengthening local governance—cited

by 8 (32%)—focused on combating corruption and promoting transparency. Law enforcement patrols (10 participants, 40%) aimed to deter illegal activities, but faced operational challenges. Formation of mining cooperatives (6, 24%) and alternative livelihood programs (7, 28%) were less common but seen as potentially transformative, offering miners both formal organization and pathways out of dependency on mining. Environmental monitoring and conflict mediation committees, mentioned by 5 (20%) and 4 (16%) respectively, were less widely referenced, reflecting limited implementation or awareness at the community level.

Table 3 Strategies Used to Mitigate Socio-Economic and Political Conflicts (n=25)

Strategy	Description	Participants Mentioned (n)	Percentage (%)
Community Sensitization	Public campaigns, workshops, and meetings to educate about mining risks, rights, and regulations	11	44
Multi-Stakeholder Dialogues	Forums involving government, miners, NGOs, and community leaders for conflict resolution	9	36
Strengthening Local Governance	Efforts to increase transparency, reduce corruption, and improve accountability	8	32
Law Enforcement Patrols	Police/regulatory agency patrols and stricter enforcement of mining laws	10	40
Mining Cooperatives	Formation of formal groups to help small-scale miners access markets and resources	6	24
Alternative Livelihood Programs	Skills training and support for jobs outside mining (e.g., agriculture, small business)	7	28
Environmental Monitoring	Community/agency initiatives to track and report environmental violations	5	20
Conflict Mediation Committees	Local committees created to resolve disputes and mediate between stakeholders	4	16

➤ *Participant Perspectives on Strategy Effectiveness*

• *Community Sensitization*

While a minority of participants found community sensitization highly effective, most rated it as only moderately effective due to limited reach and low literacy levels. One participant remarked, “Sensitization meetings help, but many people cannot read the materials provided, so the impact is less than expected.” Another noted, “Workshops are good for those who attend, but a lot of community members are left out, especially the elderly and women.” A third observed, “We now know more about the dangers of illegal mining, but many still ignore the messages because they need to survive.”

• *Multi-Stakeholder Dialogues*

These forums were generally perceived as moderately effective, though irregular scheduling and follow-up issues were raised. As one respondent stated, “Dialogues bring together miners, chiefs, and government, but most solutions discussed are not implemented after the meeting.” Another explained, “During stakeholder meetings, we air our grievances, but feedback is slow and often, nothing changes on the ground.” A third participant shared, “We need more regular meetings, not just once a year, to really solve the conflicts in our communities.”

• *Strengthening Local Governance*

Many participants expressed skepticism about improvements in local governance, attributing persistent problems to corruption and slow reforms. One participant commented, “Officials promise to tackle illegal mining, but corruption makes it easy for some miners to continue without consequences.” Another shared, “We see announcements about new rules, but in practice, nothing really changes those with money still get away with breaking the law.” An additional view stated, “If local leaders were honest, there would be fewer conflicts, but people do not trust the system.”

• *Law Enforcement Patrols*

Although increased patrols were appreciated by some, weaknesses in enforcement were frequently reported. “Police come around, but sometimes they accept bribes and let the illegal miners continue their work,” said one participant. Another observed, “There are not enough patrols to cover all mining sites, so many illegal activities go unnoticed.” A third participant added, “Patrols are only strict when there’s pressure from higher authorities, otherwise things return to normal quickly.”

• *Mining Cooperatives*

Cooperatives were mentioned as a potential solution, but most participants encountered challenges such as poor management and mistrust. “Cooperatives are supposed to

help us get better prices and safety, but leaders often misuse funds,” one miner shared. Another stated, “Not everyone trusts the cooperative process; some prefer to work alone to avoid disputes over earnings.” A third participant said, “We joined a cooperative, but there is little support and too many conflicts among members.”

- *Alternative Livelihood Programs*

Alternative economic initiatives received mixed reviews, with many citing poor funding and weak follow-through. “The training in farming was helpful, but without capital or markets, most people return to mining,” explained one resident. Another noted, “We need more support to start small businesses, not just skills workshops.” An additional participant remarked, “Programs start with promise but fade away due to lack of follow-up by organizers.”

- *Environmental Monitoring*

Few participants found environmental monitoring effective, mainly due to lack of equipment and expertise. “We’re asked to report pollution, but there’s no system for regular checks or follow-up on complaints,” noted one respondent. Another said, “Monitoring is left to a few volunteers who have no training; it is not enough to protect our environment.” A third participant commented, “Without proper tools, it’s hard to prove the damage caused by mining activities.”

- *Conflict Mediation Committees*

Conflict mediation was rarely rated highly due to limited authority and visibility in the community. “Most people don’t know about the committees and prefer to settle disputes themselves,” one participant explained. Another stated, “Committees try to resolve land issues, but their decisions are not always respected by miners.” A third added, “The committees lack power and resources to enforce their resolutions, so conflicts often continue.”

## V. DISCUSSION

This study was aimed at exploring the socio-economic and political conflicts emanating from unregulated mining activities in Chingola, Zambia. Thus, the study provides critical insights into the complex socio-economic, political, and environmental impacts of unregulated mining in Chingola District. The findings reveal how demographic factors, systemic governance failures, and environmental consequences shape the lived experiences and perceptions of community members, miners, local officials, and environmental experts. These results not only corroborate previous scholarly work but also contribute new empirical evidence on the challenges and dynamics within Zambia’s informal mining sector.

Demographic factors significantly influenced participant perspectives on unregulated mining. Younger respondents emphasized the importance of mining as a source of employment amid high local unemployment, echoing Hilson (2002) who noted the sector’s role in absorbing jobless youth in resource-rich regions. In contrast, older participants were more concerned with the long-term impacts on

governance and environmental degradation, aligning with studies by Bebbington (2013) that highlight generational divides in mining communities. Gender disparities were pronounced; men predominantly took on direct mining roles, exposing themselves to hazardous conditions, while women engaged in supportive livelihoods, such as trade or household-based economic activities. This division reflects broader patterns in artisanal mining globally, where women’s contributions are often undervalued and their exposure to risk is both direct and indirect (Lahiri-Dutt, 2012). Occupational background also shaped views: miners cited both financial necessity and occupational dangers, while small business owners and farmers described a decline in income stability and environmental quality due to mining activities. Unemployed individuals expressed hope that mining expansion could alleviate poverty, despite the lack of job security or proper workplace protections. These demographic insights underscore the need for interventions tailored to the varied vulnerabilities and aspirations of different groups.

The factors associated with unregulated mining in Chingola District are multifaceted and interlinked. The absence of clear governmental guidelines (42%) has fostered a regulatory vacuum, enabling informal mining to thrive and contributing to environmental degradation and resource mismanagement findings supported by Hilson (2002) and echoed in recent studies (Banchirigah, 2006). Corruption and the prioritization of political interests (40%) were cited as major barriers to effective enforcement, mirroring Ross (2001) and Auty’s (1993) analyses of the “resource curse,” where mineral wealth undermines good governance. Environmental challenges were central to participants’ concerns: deforestation, water pollution, and soil erosion (60%) have disrupted agricultural livelihoods and endangered community health, in line with Ashton et al. (2001) and Van Straaten (2000), who documented similar impacts across sub-Saharan Africa. Socio-economic pressures such as poverty (48%), economic instability (38%), and wealth inequality (35%) compel individuals to engage in informal mining, reinforcing cycles of vulnerability and exclusion. As Bebbington (2013) and Veiga et al. (2006) argue, without alternative livelihoods and equitable economic policies, communities remain trapped in precarious work and persistent poverty. Social conflicts over resource access (25%) have intensified, pitting informal miners against both established companies and each other—a pattern Campbell (2009) and Saunders (2018) describe as endemic to contested resource frontiers.

The effects of unregulated mining on socio-economic and political development are profound. Participants reported that the sector has displaced traditional livelihoods such as farming and small business, creating income instability and economic insecurity. This shift parallels findings by Werthmann (2003) and Garvin et al. (2009), who note that artisanal mining rarely delivers sustainable development to local communities, instead reinforcing dependency on volatile mineral markets and external brokers. The lack of formal regulation exposes miners to exploitation and unpredictable earnings, while wealth generated from mining disproportionately accrues to large corporate actors,

deepening local inequalities. Governance failures and corruption further exacerbate these issues; participants described instances where government officials and law enforcement colluded with miners, prioritizing profits over community welfare—an observation that supports Haglund’s (2011) and Le Billon’s (2011) analyses of weak institutional frameworks in mineral-rich states. Calls for stronger anti-corruption measures and more effective regulation were a recurring theme among participants.

Environmental degradation emerged as an urgent concern. Community members described widespread deforestation, polluted waterways, and declining biodiversity, with many referencing health risks linked to water contamination and exposure to toxic chemicals, including mercury and cyanide. These findings are consistent with Kitula (2006) and Edwards et al. (2014), who detail the long-term ecological and public health consequences of poorly regulated mining. Participants expressed frustration with the lack of restoration efforts and weak environmental monitoring, underlining the need for legal frameworks that enforce sustainable practices and remediation.

Community perceptions and conflict dynamics were characterized by frustration, exclusion, and inequality. Residents voiced anger over the distribution of mining profits, with local workers feeling marginalized compared to corporate stakeholders a dynamic also observed by Campbell (2009). Conflicts over land rights and access to resources were common, exacerbated by the absence of community-driven decision-making and effective mediation structures. Some participants noted the rise of grassroots advocacy for stronger regulation, echoing Luning’s (2010) findings on emergent civil society responses to mining injustices, though these movements often lack adequate support and influence. This study revealed how unregulated mining in Chingola District is shaped by, and in turn shapes, deep-seated socio-economic, political, and environmental challenges. The findings reinforce the urgent need for policy reforms, stronger governance, targeted socio-economic interventions, and robust environmental protections to address the negative impacts of informal mining and support sustainable development in affected communities.

## VI. CONCLUSION

The findings of this study demonstrate that unregulated mining in Chingola has far-reaching socio-economic, political, and environmental consequences. The study confirms that while mining provides short-term economic opportunities, it has destabilized traditional livelihoods, exacerbated income inequalities, and created financial insecurity among informal miners. Political corruption and weak governance structures enable illegal mining operations to persist, preventing effective regulation and accountability. Furthermore, the environmental damage caused by uncontrolled excavation, deforestation, and water contamination poses long-term risks to both human health and ecological sustainability. Community frustrations over unfair resource distribution and exclusion from decision-making processes have led to growing social tensions

between miners, local authorities, and corporate stakeholders. The literature reviewed in this study supports the findings, reinforcing the argument that resource-rich regions often experience governance failures, economic vulnerability, and environmental degradation due to overdependence on extractive industries. Mining’s contribution to economic instability and social inequality is evident, and participants highlighted the urgent need for sustainable mining practices that prioritize economic diversification, community empowerment, and environmental protection. Addressing these challenges requires systematic reforms, enhanced policy enforcement, and an inclusive governance framework that recognizes the rights and needs of local populations.

## RECOMMENDATIONS

Based on the study’s findings, several key strategies are recommended to improve mining governance and socio-economic outcomes in Chingola. Strengthening regulatory frameworks and enforcing anti-corruption policies are crucial for ensuring ethical mining practices and fair resource distribution. Diversifying the local economy by investing in non-mining industries would provide alternative employment opportunities, reducing community dependence on informal mining. Implementing sustainability policies, including land rehabilitation programs, could help address long-term ecological damage, while fostering participatory governance models would empower local communities and ensure mining benefits are more equitably shared.

### ➤ *Recommendation for Future Studies*

For future research, it is recommended that longitudinal studies be conducted to better understand the long-term economic stability of informal miners and their communities. Further evaluation of the effectiveness of Zambia’s mining policies and their enforcement, including comparative studies across regions, would highlight regulatory strengths and weaknesses. Additional research should include medical assessments to evaluate health impacts from environmental contamination and explore how technological innovation can reduce environmental harm while increasing mining efficiency. Finally, future studies should investigate the broader sustainability of mining in climate-vulnerable regions to inform adaptive and resilient policy development.

### ➤ *Author Contributions:*

Conceptualization, methodology writing review and editing and analysis (A.C) The author has decided to published this version of the review article, Editing the article (DR. F.S)

### ➤ *Funding:*

Funding for this research was not provided. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed. No writing assistance was utilized in the production of this manuscript.

➤ *Institutional Review Board Statement:*

This study was approved by the University of Zambia Humanities and Social Sciences Ethics Committee.

➤ *Informed Consent Statement:*

Not applicable.

➤ *Acknowledgements:*

I, am grateful Dr. Francis Simui for his unreserved support and supervision both during the preparation of the proposal and the write up of this dissertation. I remain sincere, grateful and indebted to My wife and my children not forgetting all colleagues, whose words of encouragement, affection and prayers served me as a source of strength and inspiration throughout my academic journey.

Last but not least, I thank my Lord God Almighty for the rare opportunity given to me to accomplish my dream of acquiring a Master's of Science in entrepreneurship management.

➤ *Conflicts of Interest:*

The authors declare no conflict of interest.

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