Corporate social investment and community development: A case study of the mining sector in the Copperbelt, Zambia

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ABSTRACT

This study examined the effects of Corporate Social Investment (CSI) initiatives on community development in mining-affected areas in Zambia, a case of the Copperbelt Province. It focused on three main objectives: to identify the types of CSI initiatives implemented by mining companies, to assess the effects of CSI initiatives on community development, and to propose a framework for enhancing CSI for sustainable development. The theories that guided this research are stakeholder theory and legitimacy theory. The study used an explanatory sequential mixed method, combining both qualitative and quantitative data from 100 respondents. The study employed a mixed sampling technique, combining purposive and simple random sampling. It employed an explanatory sequential mixed-methods research design, following a pragmatic research paradigm. The study used both primary and secondary data. It used semi-structured interview guides and questionnaires to collect data from participants. The data gotten from respondents was analyzed using inferential and descriptive statistics. Not only that, but the ANOVA test was also conducted to determine the relationship between variables. Results indicate that corporate social responsibility has an effect on community development. The results indicate that the most frequently identified initiative was the provision of healthcare services, endorsed by 27.8% of responses (n = 10), representing 52.6% of cases. The findings also suggest that CSI initiatives are most strongly perceived to enhance well-being (66.7%) and promote economic development (58.3%). A one-way ANOVA (regression ANOVA) was conducted, and the results indicated that the model was statistically significant, $F(1, 98) = 61.76$, $p < .001$. A simple linear regression analysis was conducted. The results show that corporate social initiatives significantly predict the effects of CSI initiatives: $B = 0.617$, $SE = 0.078$, $t(98) = 7.86$, $p < .001$. In conclusion, the study concludes that CSI initiatives in Zambia's Copperbelt are fragmented, short-term, and insufficiently aligned with community needs and sustainable development goals. The absence of structured planning, weak community participation, limited accountability, and inadequate sustainability mechanisms reduces the overall effectiveness of CSI. The study recommends that mining companies should transition from project-based CSI approaches to strategic, long-term development frameworks that integrate community priorities and national development plans.

Keywords: Corporate Social Investment, Community Development, CSR, Mining Sector, Sustainable Development, Zambia

I. INTRODUCTION

Stakeholder relationship management has been crucial to strategic leadership and business models during the last few years. In order to create genuine value for their various stakeholders, businesses that strive for sustainability and ethical management of their operations must understand and comprehend their interest groups, improve communication, satisfy their needs and expectations, and be open when reporting back on their actions, (Pons et al, 2021). Therefore, in order to redefine priorities and responsibilities within the organization from a triple perspective economic, social, and environmental it is necessary to measure the impact of the companies' actions as well as the interpretations and feelings generated toward each interest group, Frederiksen (2017). Gaining a deeper understanding of the organization's true mission, which entails justifying the activity's worth and social impact, implementing more sustainable practices to address present issues and stakeholders' interests, and identifying key goods and services that define the core business and generate genuine social value, Seloa and Ngole-Jeme, (2022). This would provide helpful information regarding the strategic priorities that businesses should address from the perspective of corporate social responsibility, or CSR. Because they are included in the United Nations 2030 agenda for Sustainable Development Goals, employee security and health conditions, as well as the environmental impact of economic activity, are two of the major global concerns. These concerns have particular relevance in some sectors depending on the nature of its activities, such as the mining industry, (Mbilima, 2021).

In general, mining has socioeconomic effects on host nations, including employment, tax revenues, export earnings, foreign direct investment (FDI), and incomes. The lessons that are now available show that the effects vary by nation. While some nations, like Botswana, successfully use their natural riches to improve human development, others suffer from a resource curse. Differences in policy pursuits, practices, incentives, and legal frameworks are linked

to final results. Through employment, skill transfer, supply chains, and corporate social responsibility, mines are anticipated to boost economic and livelihood activities in Zambia. However, Mbilima (2021), note that while nearly all services are purchased from nearby companies, very few are produced in Zambia. In actuality, very little value addition takes place, which hinders the expansion and competitiveness of small and medium-sized businesses (SMEs) and local manufacturing. Henceforth, high levels of mistrust by communities persist as does perceptions of sub-optimal contribution of mining to development.

In Zambia, CSI has changed over time, moving from the Copperbelt's paternalistic models to privatisation and the current ESG-focused investments. Local case studies in Copperbelt highlight both tangible benefits (services, infrastructure) and community issues (participation depth, sustainability after closure). The level of disclosure has increased in Zambia's mining sector. To help stakeholders monitor company commitments, ZEITI now reports tax and royalty flows alongside social contributions at the project level. Mining companies such as FQM and Barrick publish annual CSI budgets and community project portfolios in their sustainability reports. These projects typically include the construction of schools, health facilities, roads, and water infrastructure, as well as livelihood programmes that promote local enterprise and skills development. Such transparency creates a basis for independent evaluation and adaptive management of CSI activities (Shubita et al., 2023). Therefore, the aim of the study was to analyse the effects of Corporate Social Investment (CSI) on community development in Zambia's mining sector.

1.1 Statement of the Problem

Zambia's Copperbelt mining towns have long been the focus of widespread Corporate Social Investment (CSI). However, communities continue to face substantial development hurdles. It remains unclear whether and how these CSI initiatives lead to sustainable development outcomes for the host communities. Current literature suggests that CSI projects are often short-lived and predominantly focused on immediate outputs, such as the construction of schools or clinics, with inadequate evidence of long-term impact (Shubita et al., 2023; World Bank, 2023). For example, the 2024 ZEITI report shows that mining firms contributed ZMW 267 million in social contributions, yet it does not specify how effectively these funds meet community needs (ZEITI, 2024). Failure to address this gap may result in mining communities continuing to receive benefits without the necessary systemic improvements. The extent to which corporate social investment initiatives within Zambia's mining sector promote sustainable community development outcomes remains unknown. This study aims to fill that gap by analyzing the effects of how CSI in Kitwe, Chingola, and Mufulira affect areas such as education, health, infrastructure, livelihoods, and the environment, while also exploring the reasons behind the success of certain projects and the failure of others.

1.2 Research Objectives

i. To identify the types of Corporate Social Investment (CSI) initiatives implemented by mining companies in Zambia's Copperbelt province.
ii. To assess the effects of CSI initiatives on community development in mining affected areas.
iii. To propose a framework of how CSI initiatives can be enhanced by mining companies in Zambia.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Stakeholder Theory

According to the Stakeholder Theory, first advanced by Freeman and Dmytriyev (2017), companies should consider the interests of all parties affected by their operations, not only shareholders. These include customers, suppliers, employees, governments, and, most importantly, host communities. Stakeholder engagement plays a proactive role in strengthening corporate legitimacy, sustainability, and long-term value creation, (Freeman & Menghwar, 2024). The theory is especially useful in industries such as mining, where businesses can reduce conflict, foster trust, and maintain operational stability by addressing stakeholder concerns (Lozano et al., 2015).

Stakeholder Theory provides valuable insight into the motivations behind Corporate Social Investment (CSI) initiatives in Zambia's mining sector, particularly in balancing the interests of host communities and shareholders. Companies such as Mopani Copper Mines invest in infrastructure, healthcare, and education to align with community expectations and uphold their social licence to operate. This framework helps to evaluate whether CSI efforts are genuinely driven by stakeholder input and whether they meet community needs or serve mainly symbolic purposes.

However, a key limitation of Stakeholder Theory is that it focuses on why companies should engage stakeholders, rather than how they sustain societal approval or legitimacy over time. It does not adequately explain the external pressures, public perceptions, and social expectations that influence corporate behaviour beyond direct stakeholder relationships. For this reason, Legitimacy Theory compliments Stakeholder Theory in this study by

explaining how mining companies seek acceptance from society through CSI initiatives and how such efforts shape their long-term credibility and social licence to operate.

2.1.2 Legitimacy Theory

According to Legitimacy Theory, businesses strive to ensure that their activities are perceived as legitimate by aligning with prevailing social norms, values, and expectations. Companies seek to secure public approval and prevent legitimacy threats by engaging in social and environmental initiatives and by disclosing such efforts through sustainability reporting (Suchman, 1995; Deegan, 2019). Research shows that firms in high-impact industries such as mining often expand their Corporate Social Responsibility (CSR) and Corporate Social Investment (CSI) programmes to preserve legitimacy and reduce resistance from communities, regulators, and civil society actors.

In Zambia, mining companies rely heavily on community acceptance for uninterrupted operations. Legitimacy Theory helps explain why firms disclose CSI spending in infrastructure, health care, and education through sustainability reports and EITI frameworks. Such actions demonstrate alignment with national development priorities and community expectations, thereby reinforcing operational legitimacy. This framework guides the study in assessing whether corporate investments in community development are primarily motivated by the need to maintain social approval or by genuine commitment to societal improvement (ZEITI, 2024).

However, a major limitation of Legitimacy Theory is that it focuses on corporate motivations and image management rather than the actual developmental outcomes of social investments. It does not provide analytical tools to evaluate the effectiveness, sustainability, or developmental value of CSI initiatives at the community level. To address this gap, Corporate Social Investment Theory is incorporated to assess how these investments contribute to tangible social and economic improvements in host communities and to determine the factors influencing their long-term impact.

2.2 Empirical Review

Corporate Social Investment (CSI): Corporate Social Investment (CSI) is understood as a deliberate, strategic, and sustained effort by companies to contribute to the social, economic, and environmental advancement of the communities in which they operate. CSI is in line with business strategy and intended to generate long-term value for the company and society, in contrast to traditional philanthropy, which frequently takes the form of one-time donations. The International Council on Mining and Metals (ICMM, 2022), states that CSI in the mining industry usually concentrates on priority areas like livelihood improvement, infrastructure development, healthcare, education, and environmental conservation. In addition to addressing social and developmental gaps, mining companies use CSI initiatives to obtain their "social licence to operate," which guarantees operational stability and community acceptance. According to recent international research, CSI works best when businesses incorporate it into their core business plans and tie investments to sustainability frameworks like the Sustainable Development Goals (SDGs) of the UN, (Lozano et al. 2015). In this way, CSI is a strategic and moral response to the socioeconomic problems in communities affected by mining.

2.2.1 Types of CSI Initiatives Implemented by Mining Companies

Corporate Social Investment (CSI) in the mining sector primarily concentrates on key areas such as education, health, infrastructure, and environmental management. Companies have made significant investments to enhance infrastructure and improve access to essential social amenities. However, the benefits derived from these initiatives have often been short-lived and unevenly distributed across communities. It has been discovered that CSI programs in Zambia's Copperbelt region primarily emphasize infrastructure and education, with limited focus on community empowerment and capacity building outcomes. Likewise, Kourouma et al. (2023) observed that mining companies operating in the Chingola District have implemented education and health interventions, yet these initiatives frequently lack adequate community ownership, which undermines their sustainability.

On a global level, the International Council on Mining and Metals (ICMM, 2022) underscores that CSI should align with the Sustainable Development Goals (SDGs), advocating for initiatives that address poverty, education, health, and environmental stewardship. However, Koers Journal (n.d.) points out that Zambia's evolution of CSI, from colonial-era social paternalism to contemporary corporate accountability, has not consistently yielded measurable developmental outcomes.

2.2.2 Effects of CSI Initiatives on Community Development

Numerous studies have investigated the impact of Corporate Social Investment (CSI) on community development in mining regions, yet the findings are quite varied. While CSI activities have improved access to basic services, they have not significantly enhanced community resilience or income generation. Similarly, Muruviwa et al. (2018) reported that in Zimbabwe, CSI efforts improved infrastructure and service accessibility, but failed to foster sustainable livelihoods. In Ghana, Kourouma, et al, (2023) analyzed CSI practices within the mining sector and

discovered that benefits were uneqally distributed, often leaving local communities out of the decision-making processes. Likewise, Kourouma et al. (2023) noted comparable trends in Zambia, highlighting that while mining companies contributed to education and healthcare, the long term social and economic benefits were limited. Overall, these studies suggest that although CSI initiatives lead to observable social improvements, their actual impact on sustained community development outcomes remains ambiguous. Many projects lack adequate monitoring and evaluation mechanisms to assess their effectiveness. This situation represents a significant evidence gap in linking CSI investments to measurable social and economic outcomes in mining communities.

2.2.3 Enhancing CSI Initiatives for Sustainable Community Development

Improving the effectiveness of Corporate Social Investment (CSI) requires inclusive participation from stakeholders, transparency, and a commitment to long-term outcomes. The framework established by the International Council on Mining and Metals (ICMM) in 2022 emphasizes that meaningful community engagement and collaborations with local authorities are important for achieving sustainable results. Additionally, Kourouma et al. (2023) give emphasis to the participatory planning and robust accountability mechanisms that significantly contribute to the success of CSI initiatives.

Mhone (2020) advocate for a transition from traditional philanthropic approaches to a development-oriented model of CSI that empowers local communities through capacity building and support for enterprises. However, there is a notable scarcity of studies that offer concrete models to guide mining firms in systematically designing, implementing, and evaluating CSI programs, particularly within the context of Zambia. This indicates a methodological and contextual gap that this study aims to address by developing a practical enhancement framework.

III. METHODOLOGY

3.1 Research Design

This study employed an explanatory sequential mixed-methods research design, following a pragmatic research paradigm. This design allowed for initial quantitative measurement of relationships between Corporate Social Investment (CSI) initiatives and community development outcomes, followed by qualitative exploration to contextualize these findings (Creswell & Plano Clark, 2018). The research proceeded in two phases. The quantitative phase used structured questionnaires to assess the effect of CSI initiatives on infrastructure, and livelihoods among community members and company representatives. In the qualitative phase, stakeholders participated in interviews. Document analysis of ZEITI reports and corporate sustainability disclosures further enriched the data.

3.2 Study Area or Site

The study was conducted on the Copperbelt where large-scale copper and cobalt mining activities dominate and serve as the backbone of the national economy. The Copperbelt regions host major mining companies such as Konkola Copper Mines (KCM), Mopani Copper Mines (MCM), and Chibuluma Mines, which are key contributors to Corporate Social Investment (CSI) projects, (ZEITI, 2024). Communities in towns like Kitwe, Chingola and Mufulira heavily depend on the mining sector, not only for employment but also for social services provided through CSI initiatives. The study area was appropriate as it reflects both the opportunities and challenges of CSI in addressing community needs such as education, healthcare, and infrastructure. Focusing on these mining regions provided critical insights into the effectiveness of CSI in promoting sustainable development within Zambia's mining communities, (World Bank, 2023).

3.3 Target Population

The target population for this study included residents of mining host communities in the Copperbelt and mining company representatives directly involved in CSI activities. These groups were central to the research because they either benefit from or influence the design and implementation of community development programs.

3.4 Study Sample/ Sampling Framework

The study focused on selected mining communities and companies in the Copperbelt Province, namely Kitwe, Chingola, and Mufulira. The locations were purposively selected because they host major mining operations with long-standing Corporate Social Investment (CSI) programs as well as large concentrations of mining-affected communities, and documented variation in CSI outcomes reported in recent assessments (ZEITI, 2024; World Bank, 2023). A mixed sampling framework was employed. Purposive sampling was used to select mining company officials, local leaders, and government representatives directly involved in Corporate Social Investment (CSI), forming a relatively homogeneous group of key informants with in-depth knowledge of company initiatives. Random sampling was also applied to community members, creating a heterogeneous sample that captured a wide range of perspectives from beneficiaries of CSI projects.

3.5 Sampling Techniques

The study employed a mixed sampling technique, combining purposive and simple random sampling. Purposive sampling was used to select key informants such as mining officials, government representatives, and community leaders who have direct knowledge of Corporate Social Investment (CSI) activities, (Palinkas et al., 2015). On the other hand, simple random sampling was also applied to community members to ensure fairness and reduce bias in representing beneficiary perspectives, (Pons et al., 2021)

3.6 Sample Size

In line with the explanatory sequential mixed methods design, the study employed two sample groups: one for the quantitative survey and another for the qualitative interviews. For the quantitative component, the sample size was determined using Taro Yamane's formula (Umar & Wachiko, 2021):

The formula:

n = N / (1 + N(e)^2)

Where:

N = Copperbelt Province population (Zambia Statistics Agency)

n = desired sample size

e = level of precision, assumed at 0.1

Thus:

n = 2,768,192 / [1 + 2,768,192(0.01)]

n = 100 participants

Therefore, 100 community respondents were surveyed to provide quantitative data on the perceived effects of Corporate Social Investment (CSI) initiatives on community development.

3.7 Data Collection Methods

The study used both primary and secondary data. The study used semi-structured interview guides and questionnaires to collect data from participants. The questionnaire, composed of closed-ended questions, was used to gather quantitative data from community members. This tool was suitable because it produced consistent, comparable responses that can be statistically analysed to measure the effects of Corporate Social Investment (CSI) on community development. Additionally, semi-structured interviews allowed for flexibility in the interview process, enabling the researcher to ask follow-up questions and probe deeper into specific issues.

3.8 Procedure for Data Collection

The study began with an introductory meeting with the participants to discuss the purpose and objectives of the study. After securing permission to conduct the study, potential participants were contacted through email or phone to secure their participation in the study. Semi-structured interviews were conducted via online video conferencing platforms. Furthermore, the researcher also used a questionnaire in the data collection procedure.

3.9 Data Analysis

Quantitative data was analysed using descriptive statistics, including frequencies, percentages and means, to summarise and present data on the extent and perceived effects of Corporate Social Investment (CSI) initiatives. The statistics helped to identify patterns and trends that describe community responses in a clear and interpretable form. Data entry and analysis was carried out using IBM SPSS and Microsoft Excel. Qualitative data from interviews was analyzed through thematic analysis, which involves coding and categorising data into themes and sub-themes related to the research questions.

3.10 Ethical Considerations

The study adhered to established ethical guidelines, including informed consent and confidentiality of all participants. Prior to data collection, participants were informed of the purpose of the research, namely to analyse the effects of Corporate Social Investment on community development in selected mining areas of the Copperbelt Province. They were also informed that completing the questionnaire will take approximately 10 to 15 minutes, while qualitative interviews required about 30 to 45 minutes, depending on the participant's availability and level of detail provided.

IV. FINDINGS & DISCUSSION

4.1 Findings

4.1.1 Background Characteristics

A number of background characteristics were considered in this study. Figure 2 below shows the percent distributions of how many respondents responded and the gender.

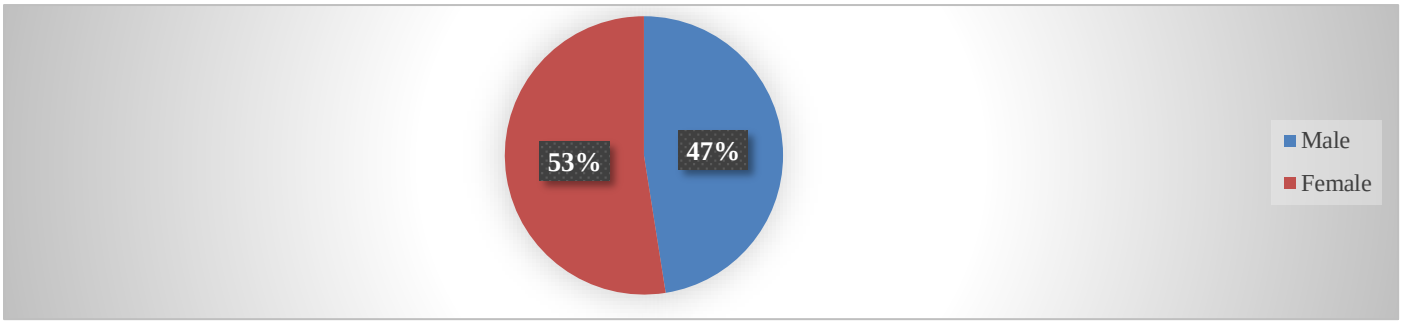

Figure 2
Gender Percentage Representation

In the sample, a total of 100 respondents were surveyed. Of these, 57 (57%) were male, while 43 (43%) were female. This indicates that the sample was moderately male-dominated, although both genders were reasonably represented.

Table 1
Age of Respondents

Age Range	Frequency	Percent
18-25 Years	14	14.0
26-36 Years	28	28.0
36-45 Years	33	33.0
46 and Above Years	25	25.0
Total	**100**	**100.0**

The age distribution of the respondents (N = 100) indicates that the largest proportion fell within the 36–45 years category (n = 33, 33.0%), followed by those aged 26–36 years (n = 28, 28.0%), while the smallest group comprised those aged 18–25 years (n = 14, 14.0%).

Table 2
Community Affiliation

Affiliation	Frequency	Percent
Local Resident	61	61.0
Community Leader	9	9.0
Employee of Mining Company	24	24.0
Other	6	6.0
Total	**100**	**100.0**

The distribution of respondents by community affiliation (N = 100) indicates that the majority were local residents (n = 61, 61.0%). Employees of mining companies constituted 24.0% of the sample (n = 24), while community leaders represented a smaller proportion (n = 9, 9.0%). Respondents categorized as "Other" accounted for the least share (n = 6, 6.0%).

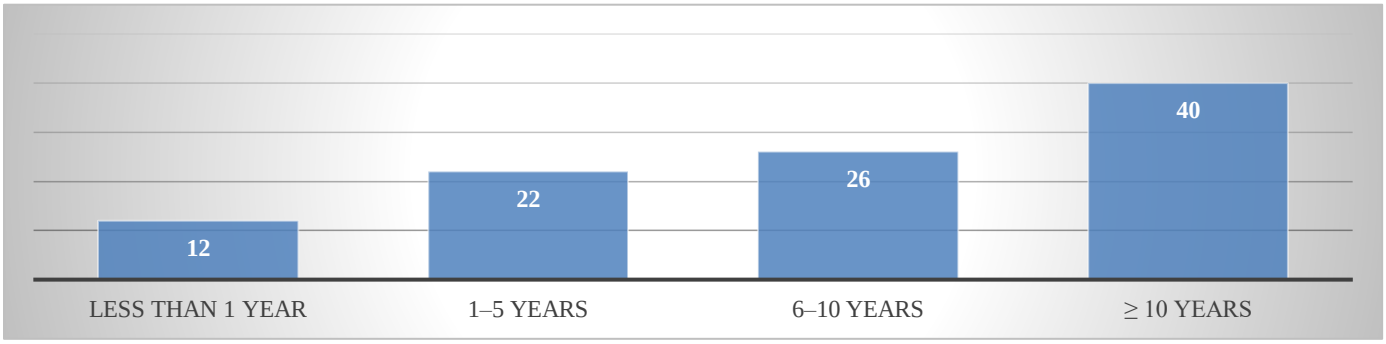

Figure 3
Years of Residence in Community

The above figure shows the number of years of residents have stayed in an area. The distribution of respondents by years of residence in the community (N = 100) shows that the largest proportion had lived in the community for 10 years or more (n = 40, 40.0%). This was followed by those who had resided in the area for 6–10 years (n = 26, 26.0%) and 1–5 years (n = 22, 22.0%). Respondents with less than one year of residence constituted the smallest group (n = 12, 12.0%).

4.1.2 Types of Corporate Social Investment (CSI) Initiatives Implemented by Mining Companies in Zambia's Copperbelt Province

The first objective of this study was to identify the types of Corporate Social Investment (CSI) initiatives implemented by mining companies in Zambia's Copperbelt province. Table 3 below shows the results for this objective.

Table 3

Corporate Social Investment (CSI) initiatives

(a). Mines invest in Education	**Frequency**	**Percent**
Strongly Disagree	4	4
Disagree	25	25
Neutral	21	21
Agree	43	43
Strongly Agree	7	7
Total	**100**	**100**
(b). Mines Provide Healthcare	**Frequency**	**Percent**
Strongly Disagree	2	2
Disagree	28	28
Neutral	16	16
Agree	44	44
Strongly Agree	10	10
Total	**100**	**100**
(c). Infrastructure projects (water, electricity)	**Frequency**	**Percent**
Strongly Disagree	2	2
Disagree	28	28
Neutral	16	16
Agree	44	44
Strongly Agree	10	10
Total	**100**	**100**
(d). Environmental initiatives	**Frequency**	**Percent**
Strongly Disagree	7	7
Disagree	36	36
Neutral	25	25
Agree	26	26
Strongly Agree	6	6
Total	**100**	**100**
(e). Supports community	**Frequency**	**Percent**
Strongly Disagree	4	4
Disagree	20	20
Neutral	25	25
Agree	44	44
Strongly Agree	7	7
Total	**100**	**100**

Frequencies were analyzed to examine respondents' perceptions of mining companies' contributions to community development (N = 100). For investment in education, the largest proportion of respondents agreed (n = 43, 43%) or strongly agreed (n = 7, 7%), while 25% (n = 25) disagreed and 21% (n = 21) were neutral. This suggests a generally positive, though not unanimous, perception of educational support. Regarding the provision of healthcare, most respondents expressed agreement (n = 44, 44%) or strong agreement (n = 10, 10%), whereas 28% (n = 28) disagreed and 16% (n = 16) remained neutral. This indicates that healthcare support is perceived favourably by a majority of participants. For infrastructure development (e.g., water and electricity), responses followed a similar pattern, with 44% (n = 44) agreeing and 10% (n = 10) strongly agreeing. However, 28% (n = 28) disagreed and 16% (n = 16) were neutral, suggesting moderate approval with notable reservations among a substantial minority.

Perceptions of environmental initiatives were comparatively less favourable. While 26% (n = 26) agreed and 6% (n = 6) strongly agreed, a larger proportion of respondents disagreed (n = 36, 36%), with 25% (n = 25) indicating neutrality and 7% (n = 7) strongly disagreeing. This reflects more critical views regarding environmental efforts by mining companies. Finally, in terms of general community support, 44% (n = 44) of respondents agreed and 7% (n = 7) strongly agreed, whereas 20% (n = 20) disagreed and 25% (n = 25) were neutral. This suggests an overall positive perception, though with some degree of uncertainty and dissent. Overall, the findings indicate that respondents tend to view mining companies' contributions to education, healthcare, infrastructure, and general community support positively, albeit moderately.

Table 1

CSI Initiatives

$CSI Initiatives Frequencies				
		Responses		**Percent of Cases**
		N	**Percent**	
$CSI_Initiatives[a]	(a). Mines invest in Education	7	19.4%	36.8%
	(b). Mines Provide Healthcare	10	27.8%	52.6%
	(c). Infrastructure projects (water, electricity)	6	16.7%	31.6%
	(d). Environmental initiatives	6	16.7%	31.6%
	(e). Supports community	7	19.4%	36.8%
Total		**36**	**100.0%**	**189.5%**

A multiple response analysis was conducted to identify the most frequently endorsed Corporate Social Investment (CSI) initiatives, with responses dichotomized at the value of 5 (i.e., "strongly agree") (N = 100). The results indicate that the most frequently identified initiative was the provision of healthcare services, endorsed by 27.8% of responses (n = 10), representing 52.6% of cases. This was followed by investment in education and general community support, each accounting for 19.4% of responses (n = 7), representing 36.8% of cases, respectively. Infrastructure development (e.g., water and electricity) and environmental initiatives were the least frequently endorsed, each comprising 16.7% of responses (n = 6), equivalent to 31.6% of cases. The total percentage of cases exceeded 100% (189.5%) because respondents were allowed to select multiple initiatives. Overall, the findings suggest that healthcare provision is perceived as the most prominent CSI activity, while infrastructure and environmental initiatives are comparatively less emphasized by respondents.

Table 5

Statistics

Statistics						
		(a). Mines invest in Education	**(b). Mines Provide Healthcare**	**(c). Infrastructure projects (water, electricity)**	**(d). Environmental initiatives**	**(e). Supports community**
N	**Valid**	**100**	**100**	**100**	**100**	**100**
	Missing	0	0	0	0	0
Mean		3.24	3.32	2.88	3.02	3.30
Std. Error of Mean		.104	.105	.107	.103	.100
Median		3.50	4.00	3.00	3.00	4.00
Std. Deviation		1.036	1.053	1.066	1.035	1.000
Range		4	4	4	4	4

Descriptive statistics were computed to assess respondents' perceptions of mining companies' contributions to community development (N = 100). Overall, the mean scores suggest moderate agreement across all dimensions. Perceptions that mines provide healthcare recorded the highest mean (M = 3.32, SD = 1.05), followed closely by support to the community (M = 3.30, SD = 1.00) and investment in education (M = 3.24, SD = 1.04). Environmental initiatives were rated moderately (M = 3.02, SD = 1.04), while infrastructure projects such as water and electricity received the lowest mean rating (M = 2.88, SD = 1.07).

The median values (ranging from 3.00 to 4.00) further indicate that responses were generally centered on neutrality to agreement. The relatively similar standard deviations (approximately 1.00) across all items suggest a consistent level of variability in respondents' perceptions. Overall, the findings imply that while mining companies are perceived to contribute to community development, these contributions are viewed as moderate rather than strongly positive, with infrastructure development receiving comparatively less favourable ratings.

4.1.3 Effects of CSI Initiatives on Community Development in Mining Affected Areas

The second objective of this study was to assess the effects of CSI initiatives on community development in mining affected areas. The findings are presented in this subsection.

Table 6

Effects of CSI Initiatives

(a). CSI Improved Access to Education	**Frequency**	**Percent**
Strongly Disagree	2	2
Disagree	24	24
Neutral	27	27
Agree	42	42
Strongly Agree	5	5
Total	**100**	**100**
(b). Enhance Well Being	**Frequency**	**Percent**
Strongly Disagree	4	4
Disagree	28	28
Neutral	30	30
Agree	30	30
Strongly Agree	8	8
Total	**100**	**100**
(c). Infrastructure Improved Daily Life	**Frequency**	**Percent**
Strongly Disagree	3	3
Disagree	39	39
Neutral	26	26
Agree	27	27
Strongly Agree	5	5
Total	**100**	**100**
(d). Local Economic Developments and Job Opportunities	**Frequency**	**Percent**
Strongly Disagree	6	6
Disagree	32	32
Neutral	15	15
Agree	40	40
Strongly Agree	7	7
Total	**100**	**100**
(e). Reduced Negative Impacts of Mining Activities	**Frequency**	**Percent**
Strongly Disagree	14	14
Disagree	34	34
Neutral	23	23
Agree	27	27
Strongly Agree	2	2
Total	**100**	**100**

Frequencies were analyzed to assess respondents' perceptions of the impact of Corporate Social Investment (CSI) initiatives (N = 100). Regarding improved access to education, the majority of respondents agreed (n = 42, 42%) or strongly agreed (n = 5, 5%), while 24% (n = 24) disagreed and 27% (n = 27) were neutral. This indicates a generally positive perception, though a notable proportion remained uncertain. For enhancement of well-being, responses were more evenly distributed. While 30% (n = 30) agreed and 8% (n = 8) strongly agreed, a combined 32% (n = 32) disagreed and 30% (n = 30) were neutral. This suggests mixed perceptions, with no clear consensus among respondents.

In terms of infrastructure improving daily life, a larger proportion of respondents expressed disagreement (n = 39, 39%), compared to those who agreed (n = 27, 27%) or strongly agreed (n = 5, 5%). Additionally, 26% (n = 26) were neutral. These findings indicate relatively low satisfaction with the impact of infrastructure projects on daily living conditions. Regarding local economic development and job opportunities, 40% (n = 40) of respondents agreed and 7% (n = 7) strongly agreed, while 32% (n = 32) disagreed and 15% (n = 15) were neutral. This reflects a moderately positive perception, although a substantial proportion of respondents held less favourable views. Finally, perceptions of reduced negative impacts of mining activities were predominantly negative. A total of 34% (n = 34) disagreed and 14% (n = 14) strongly disagreed, compared to only 27% (n = 27) who agreed and 2% (n = 2) who strongly agreed. Additionally, 23% (n = 23) were neutral. This suggests that respondents generally do not perceive CSI initiatives as effectively mitigating the adverse effects of mining. Overall, the results indicate that CSI initiatives are viewed somewhat positively in areas

such as education and economic development, but less favourably in improving infrastructure, enhancing well-being, and particularly in reducing the negative impacts of mining activities.

Table 7

Effects of CSI Initiatives

Effects of CSI Initiatives				
		Responses		**Percent of Cases**
		N	**Percent**	
$Effects_of_CSI_Initiatives[a]	(a). CSI Improved Access to Education	5	18.5%	41.7%
	(b). Enhance Well Being	8	29.6%	66.7%
	(c). Infrastructure improved daily life	5	18.5%	41.7%
	(d). Local Economic Developments and Job Opportunities	7	25.9%	58.3%
	(e). Reduced Negative Impacts of Mining Activities	2	7.4%	16.7%
Total		**27**	**100.0%**	**225.0%**

A multiple response analysis was conducted to examine the perceived effects of Corporate Social Investment (CSI) initiatives, with responses dichotomized at the value of 5 ("strongly agree") (N = 100). The results indicate that enhancing well-being was the most frequently endorsed effect, accounting for 29.6% of responses (n = 8) and representing 66.7% of cases. This was followed by local economic development and job opportunities, which constituted 25.9% of responses (n = 7), representing 58.3% of cases. Improved access to education and infrastructure improving daily life were each endorsed by 18.5% of responses (n = 5), corresponding to 41.7% of cases, respectively. In contrast, reduced negative impacts of mining activities was the least frequently endorsed effect, accounting for only 7.4% of responses (n = 2), representing 16.7% of cases.

The total percentage of cases exceeded 100% (225.0%) because respondents were allowed to select multiple responses. Overall, the findings suggest that CSI initiatives are most strongly perceived to enhance well-being and promote economic development, while their effectiveness in mitigating the negative impacts of mining activities is viewed as relatively limited.

Table 8

Statistics of Effects of CSI

Statistics						
		(a). Success of CSI programs depends on community	**(b) Lack of transparency and accountability**	**(c). Strong partnerships**	**(d). Limited financial resources**	**(e). Monitoring and evaluation mechanisms Essential**
N	Valid	100	100	100	100	100
	Missing	0	0	0	0	0
Mean		4.00	4.06	4.08	3.92	4.08
Std. Error of Mean		.083	.081	.087	.093	.091
Median		4.00	4.00	4.00	4.00	4.00
Std. Deviation		.829	.814	.872	.929	.907
Range		4	3	4	4	4

Descriptive statistics were computed to examine respondents' views on factors influencing the success and challenges of Corporate Social Investment (CSI) programs (N = 100). Overall, the mean scores indicate a high level of agreement across all factors, with values approaching 4.00 on the scale. Strong partnerships (M = 4.08, SD = 0.87) and the importance of monitoring and evaluation mechanisms (M = 4.08, SD = 0.91) recorded the highest mean scores, suggesting that respondents strongly perceive these as critical to the success of CSI programs. Similarly, lack of transparency and accountability was rated highly (M = 4.06, SD = 0.81), indicating that respondents consider it a significant challenge affecting program effectiveness.

The perception that the success of CSI programs depends on the community also received a high mean score (M = 4.00, SD = 0.83), reinforcing the importance of community involvement. Limited financial resources, while still rated highly, recorded the lowest mean among the factors (M = 3.92, SD = 0.93), suggesting it is a concern but slightly less emphasized compared to the other factors. The median score of 4.00 across all variables indicates that responses were consistently centred around agreement. Additionally, the relatively low standard deviations (ranging from 0.81 to 0.93) suggest limited variability in responses, reflecting a strong consensus among participants. Overall, the findings

imply that respondents widely agree that effective CSI programs depend on community involvement, strong partnerships, transparency and accountability, adequate funding, and robust monitoring and evaluation systems.

Table 9

Correlation between CSIs and Effects

Correlations			
		Corporate Social Initiatives	**Effects of CSI Initiatives**
9. Corporate Social Initiatives	Pearson Correlation	1	.622**
	Sig. (2-tailed)		.000
	N	100	100
10. Effects of CSI Initiatives	Pearson Correlation	.622**	1
	Sig. (2-tailed)	.000	
	N	100	100

**. Correlation is significant at the 0.01 level (2-tailed).

A Pearson product–moment correlation was conducted to examine the relationship between Corporate Social Initiatives and the Effects of CSI Initiatives (N = 100). The results indicated a strong, positive correlation between the two variables, r (98) = .622, p < .001 (two-tailed). This suggests that higher levels of Corporate Social Initiatives are associated with more positive effects of CSI initiatives. The relationship was statistically significant at the 0.01 level, indicating that the likelihood of this association occurring by chance is very low. Overall, the findings imply that effective implementation of Corporate Social Initiatives is strongly linked to improved outcomes and perceived benefits within the community.

Table 10

Model Summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.622[a]	.387	.380	3.083

a. Predictors: (Constant), 9. Corporate Social Initiatives

A simple linear regression analysis was conducted to examine the extent to which Corporate Social Initiatives predict the Effects of CSI Initiatives (N = 100). The model was statistically meaningful, with a correlation coefficient of R = .622, indicating a strong positive relationship between the predictor and outcome variable. The coefficient of determination, R^2 = .387, suggests that approximately 38.7% of the variance in the Effects of CSI Initiatives is explained by Corporate Social Initiatives. The adjusted R^2 = .380 indicates a minimal reduction after adjusting for sample size, confirming the model's stability. The standard error of the estimate was 3.08, reflecting the average deviation of observed values from the regression line. Overall, the findings indicate that Corporate Social Initiatives are a significant predictor of their effects, accounting for a substantial proportion of the variation in outcomes.

Table 11

Anova Test

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	587.140	1	587.140	61.764	.000[b]
	Residual	931.610	98	9.506		
	Total	1518.750	99			

a. Dependent Variable: 10. Effects of CSI Initiatives

b. Predictors: (Constant), 9. Corporate Social Initiatives

A one-way ANOVA (regression ANOVA) was conducted to test the significance of the regression model predicting the Effects of CSI Initiatives from Corporate Social Initiatives (N = 100). The results indicated that the model was statistically significant, F (1, 98) = 61.76, p < .001. The regression sum of squares (SS = 587.14) was substantially larger than the residual sum of squares (SS = 931.61), indicating that the model explains a meaningful portion of the variation in the dependent variable. The mean square for regression (MS = 587.14) compared to the residual mean square (MS = 9.51) further supports the strength of the model. Overall, the findings confirm that Corporate Social Initiatives significantly predict the Effects of CSI Initiatives, demonstrating that the regression model is statistically reliable and meaningful.

Table 12

Coefficients

Coefficients[a]								
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**	
		B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
1	(Constant)	5.332	1.274		4.184	.000	2.803	7.861
	Corporate Social Initiatives	.617	.078	.622	7.859	.000	.461	.772

a. Dependent Variable: 10. Effects of CSI Initiatives

A simple linear regression analysis was conducted to determine whether Corporate Social Initiatives significantly predict the Effects of CSI Initiatives (N = 100). The results show that Corporate Social Initiatives significantly predict the Effects of CSI Initiatives, B = 0.617, SE = 0.078, t (98) = 7.86, p < .001. The standardized coefficient indicates a strong positive effect, β = .622, suggesting that an increase in Corporate Social Initiatives is associated with a corresponding increase in the perceived effects of CSI initiatives. The regression equation can be expressed as: Effects of CSI Initiatives = 5.332 + 0.617(Corporate Social Initiatives). The intercept was also statistically significant, B = 5.332, p < .001, indicating the expected level of the dependent variable when Corporate Social Initiatives are zero. The 95% confidence interval for the slope (0.461 to 0.772) does not include zero, further confirming the statistical significance and reliability of the predictor. Overall, the findings demonstrate that Corporate Social Initiatives have a strong, positive, and statistically significant influence on the Effects of CSI Initiatives.

4.1.4 Proposed Framework for Enhancing CSI Initiatives by Mining Companies in Zambia

The third objective of this study focused on proposing a framework of how CSI initiatives can be enhanced by mining companies in Zambia.

Table 13

Proposed Framework of CSI Initiative

(a). Success of CSI programs depends on community	**Frequency**	**Percent**
Strongly Disagree	1	1
Disagree	5	5
Neutral	13	13
Agree	55	55
Strongly Agree	26	26
Total	**100**	**100**
(b) Lack of Transparency and Accountability	**Frequency**	**Percent**
Strongly Disagree	6	6
Disagree	12	12
Neutral	52	52
Agree	30	30
Strongly Agree	100	100
Total	**6**	**6**
(c). Strong Partnerships	**Frequency**	**Percent**
Strongly Disagree	2	2
Disagree	3	3
Neutral	13	13
Agree	49	49
Strongly Agree	33	33
Total	**100**	**100**
(d). Limited Financial Resources	**Frequency**	**Percent**
Strongly Disagree	2	2
Disagree	8	8
Neutral	11	11
Agree	54	54
Strongly Agree	25	25
Total	**100**	**100**
(e). Monitoring and Evaluation Mechanisms Essential	**Frequency**	**Percent**
Strongly Disagree	3	3
Disagree	3	3
Neutral	10	10
Agree	51	51
Strongly Agree	33	33
Total	**100**	**100**

Frequencies were analyzed to assess respondents' views on factors affecting the success of Corporate Social Investment (CSI) programs (N = 100). For the statement that CSI program success depends on the community, the majority of respondents agreed (n = 55, 55%) or strongly agreed (n = 26, 26%), while only a small proportion disagreed (n = 5, 5%) or strongly disagreed (n = 1, 1%). This indicates strong support for community involvement as a key determinant of CSI success. Regarding lack of transparency and accountability, the data show inconsistencies in reporting; however, the majority of respondents appear to have expressed agreement (n = 30, 30%) or neutrality (n = 52, 52%), with fewer indicating disagreement. This suggests that transparency and accountability are perceived as relevant concerns, although a large proportion of respondents remained uncertain.

For strong partnerships, most respondents agreed (n = 49, 49%) or strongly agreed (n = 33, 33%), while only a small minority disagreed (n = 3, 3%) or strongly disagreed (n = 2, 2%). This reflects a strong consensus that partnerships are critical to CSI effectiveness. Similarly, limited financial resources were widely acknowledged as a constraint, with 54% (n = 54) agreeing and 25% (n = 25) strongly agreeing, compared to 8% (n = 8) disagreeing and 2% (n = 2) strongly disagreeing. This indicates that financial limitations are perceived as a significant challenge to CSI implementation. Finally, monitoring and evaluation mechanisms were strongly supported as essential, with 51% (n = 51) agreeing and 33% (n = 33) strongly agreeing. Only a small proportion disagreed (n = 3, 3%) or strongly disagreed (n = 3, 3%). This suggests a strong consensus on the importance of monitoring and evaluation in ensuring CSI effectiveness. Overall, the findings indicate that respondents strongly support community involvement, partnerships, financial adequacy, and monitoring and evaluation as key determinants of successful CSI programs, while transparency and accountability also emerge as important but somewhat inconsistently perceived factors.

Table 14

Statistics

Statistics						
		(a). Success of CSI programs depends on community	**(b) Lack of transparency and accountability**	**(c). Strong partnerships**	**(d). Limited financial resources**	**(e). Monitoring and evaluation mechanisms Essential**
N	Valid	100	100	100	100	100
	Missing	0	0	0	0	0
Mean		4.00	4.06	4.08	3.92	4.08
Std. Error of Mean		.083	.081	.087	.093	.091
Median		4.00	4.00	4.00	4.00	4.00
Std. Deviation		.829	.814	.872	.929	.907
Range		4	3	4	4	4

Descriptive statistics were computed to examine respondents' perceptions of key factors influencing the success of Corporate Social Investment (CSI) programs (N = 100). Overall, the results indicate a high level of agreement across all variables, with mean scores ranging from 3.92 to 4.08. Strong partnerships and monitoring and evaluation mechanisms recorded the highest mean scores (M = 4.08, SD = 0.87 and M = 4.08, SD = 0.91, respectively), indicating that respondents strongly view these as essential for effective CSI implementation. Lack of transparency and accountability also received a high mean score (M = 4.06, SD = 0.81), suggesting that respondents recognize it as a significant issue affecting CSI effectiveness.

The perception that CSI program success depends on community involvement had a mean score of 4.00 (SD = 0.83), reflecting strong agreement among respondents. Limited financial resources recorded the lowest mean (M = 3.92, SD = 0.93), though it still indicates general agreement that funding constraints influence CSI performance. The median for all variables was 4.00, further confirming that most responses clustered around the "Agree" category. In addition, the relatively small standard deviations (ranging from 0.81 to 0.93) suggest low variability and a strong consensus among respondents. Thus, the findings demonstrate that respondents strongly agree that CSI success is influenced by community involvement, partnerships, transparency and accountability, financial resources, and effective monitoring and evaluation systems.

Table 15

Hinderances to Effective CSI Initiatives

Hindrances to effective CSI Initiativesa				
		Responses		Percent of Cases
		N	Percent	
$Hindrances to effective CSI Initiatives[a]	(a). Success of CSI programs depends on community	26	17.7%	49.1%
	(b) Lack of transparency and accountability	30	20.4%	56.6%
	(c). Strong partnerships	33	22.4%	62.3%
	(d). Limited financial resources	25	17.0%	47.2%
	(e). Monitoring and evaluation mechanisms Essential	33	22.4%	62.3%
Total		**147**	**100.0%**	**277.4%**

A multiple response analysis was conducted to examine perceived hindrances to effective Corporate Social Investment (CSI) initiatives, with responses dichotomized at the value of 5 ("strongly agree") (N = 100). The results indicate that strong partnerships and the need for monitoring and evaluation mechanisms were the most frequently endorsed factors, each accounting for 22.4% of responses (n = 33) and representing 62.3% of cases. Lack of transparency and accountability was also prominently identified, comprising 20.4% of responses (n = 30) and 56.6% of cases, suggesting it is a major concern affecting CSI effectiveness. The perception that CSI success depends on community involvement accounted for 17.7% of responses (n = 26), representing 49.1% of cases, while limited financial resources constituted 17.0% of responses (n = 25), corresponding to 47.2% of cases. The total percentage of cases exceeded 100% (277.4%) because respondents were allowed to select multiple responses. Overall, the findings suggest that institutional and governance-related factors particularly partnerships, monitoring and evaluation, and transparency are perceived as the most critical challenges to effective CSI implementation, alongside community involvement and financial constraints.

4.1.5 Qualitative Findings

This section presents qualitative findings obtained through semi-structured interview guides conducted with 12 participants across Kitwe, Chingola and Mufulira. The participants included community representatives and mining company officials selected through purposive sampling. Data were analysed using thematic analysis, which involved coding responses and grouping them into recurring themes. Four major themes emerged from the analysis: visibility of CSI projects, community participation, sustainability of interventions, and corporate reputation. Theme 1: Visibility of CSI Projects: Findings indicate that CSI initiatives are primarily recognised through visible and tangible projects, particularly in infrastructure and education. Participants consistently identified schools, roads and water systems as key examples of corporate involvement. The responses suggest that visibility plays a significant role in shaping perceptions of CSI effectiveness. Projects that are physically observable tend to receive stronger recognition and approval.

Theme 2: Community Participation in CSI Projects: The findings reveal limited community involvement in the planning and implementation of CSI initiatives. Several participants indicated that consultation processes are often conducted after decisions have already been made. The findings suggest that participation remains largely consultative rather than collaborative. This limits community ownership and may affect the long-term success of projects. Theme 3: Sustainability and Maintenance of CSI Projects: Sustainability emerged as a significant concern across all three study sites. Participants reported that while projects are successfully implemented, there is often limited follow-up after completion. The responses indicate that the long-term effectiveness of CSI initiatives is constrained by inadequate maintenance structures and limited post-project support.

Theme 4: CSI and Corporate Reputation: The findings show that CSI initiatives are also viewed as a strategic tool for maintaining positive relationships between mining companies and host communities. Company representatives acknowledged this role directly. The findings highlight the role of CSI in supporting corporate legitimacy and sustaining what participants referred to as a "working relationship" between companies and communities. Cross-Theme Analysis: Across the four themes, a consistent pattern emerges. Projects that are visible and tangible are more readily recognised and appreciated. However, limitations in participation and sustainability reduce the overall effectiveness of CSI initiatives.

4.2 Discussion

4.2.1 Types of Corporate Social Investment (CSI) Initiatives Implemented

The study established that mining companies in the Copperbelt Province implement CSI initiatives mainly in healthcare, education, infrastructure development, environmental management, and general community support. The findings showed moderate positive perceptions across all CSI areas, with healthcare (M = 3.32) and community support (M = 3.30) scoring highest, while infrastructure (M = 2.88) and environmental initiatives (M = 3.02) were relatively

lower. These findings are consistent with ICMM (2022) and Abel and Chibomba (2025), who note that mining companies typically prioritise visible social interventions such as health and education to maintain a social licence to operate. However, the qualitative findings provide deeper insight into how these initiatives are experienced at community level.

The findings also indicate that CSI initiatives are mainly recognised through visible and tangible projects, especially infrastructure and education-related interventions such as schools, roads, and water systems. This aligns strongly with the findings where infrastructure and education were among the most frequently acknowledged CSI areas. The emphasis on visibility suggests that communities evaluate CSI effectiveness based on physical presence rather than policy intent or long-term impact. This supports Mhone (2020), who argued that mining CSI projects often gain legitimacy through visible infrastructure delivery, even when long-term developmental outcomes remain uncertain. It also aligns with Lozano et al (2015), who emphasizes that CSR/CSI visibility enhances perceived legitimacy but does not necessarily guarantee sustainability.

The study found that community participation in CSI planning and implementation is limited and largely consultative rather than collaborative. Decisions are often made by mining companies, with communities engaged after key decisions have already been taken. This finding is critical because it explains why, despite moderate satisfaction levels in quantitative data, there remains underlying dissatisfaction in qualitative responses. The result supports Kourouma et al. (2023) and ICMM (2022), who stress that effective CSI requires active stakeholder engagement and participatory decision-making. Similarly, Frederiksen (2017) found that exclusionary governance structures weaken the developmental impact of CSR in mining communities.

4.2.2 To assess the effects of CSI initiatives on community development in mining affected areas

Effects of CSI on Community Development: The quantitative findings indicate that CSI initiatives have a moderate positive effect on community development, particularly in the areas of healthcare (M = 3.32), education (M = 3.24), and general community support (M = 3.30). However, infrastructure development (M = 2.88) and environmental initiatives (M = 3.02) were rated comparatively lower, suggesting uneven developmental outcomes across sectors. These results imply that while CSI contributes to improving access to essential services, its overall impact on transformational community development remains limited. This finding is consistent with Phiri et al, (2019), who observed that CSI in mining regions improves service delivery but does not significantly enhance income generation or community resilience. Similarly, Muruviwa et al. (2018) found that although infrastructure and services may improve, long-term socioeconomic transformation is often not achieved.

Effects on Education Development: The study established that mining companies contribute to education through school infrastructure, learning materials, and community support programs. With a mean score of 3.24, education-related CSI was perceived positively but not strongly transformative. This aligns with Kourouma et al. (2023), who found that education-focused CSI in Zambia's mining regions improves access to schooling but often lacks sustainability and community ownership. Likewise, Mayondi (2024) noted that while mining companies invest in educational infrastructure, communities frequently express dissatisfaction regarding the depth and inclusiveness of such interventions. From a theoretical perspective, ICMM (2022) argues that education-related CSI should contribute to long-term human capital development aligned with the Sustainable Development Goals (SDGs). However, the current findings suggest that in practice, education initiatives remain largely infrastructure-oriented rather than capacity-building focused, limiting their long-term developmental impact.

Effects on Healthcare Development.: Healthcare emerged as the most positively perceived CSI intervention (M = 3.32; 54% agreement), indicating that mining companies have a visible impact on improving access to health services in host communities. This finding is consistent with Abel and Chibomba (2025), who found that mining companies such as Kansanshi Mine contribute significantly to healthcare delivery through clinics, disease prevention programs, and maternal health services. Similarly, ICMM (2022) emphasizes healthcare as a priority CSI area due to its direct impact on community wellbeing. However, despite these improvements, the qualitative findings suggest that healthcare interventions are often short-term and project-based, lacking sustainability mechanisms. This supports Hilson (2023), who argues that mining-related CSR/CSI health interventions frequently fail to build resilient local health systems, resulting in dependency rather than empowerment. Therefore, while healthcare CSI improves service accessibility, its contribution to long-term health system strengthening remains limited.

Effects on Infrastructure Development: Infrastructure development recorded the lowest mean score (M = 2.88), indicating that its contribution to community development is perceived as weak or inconsistent. Although some respondents acknowledged improvements in water and electricity provision, a significant proportion expressed disagreement regarding its adequacy. This finding aligns with Shubita et al. (2023), who observed that infrastructure investments in mining communities are often insufficient relative to community expectations. Similarly, Tembo (2020) found that poor governance and limited stakeholder engagement reduce the effectiveness of infrastructure-related CSR initiatives in Zambia's mining sector. From a development perspective, infrastructure is critical for enabling economic

growth and social wellbeing. However, the findings suggest that CSI contributions in this area are not sufficiently transformative, limiting their broader developmental impact.

Effects on Environmental Sustainability: Environmental initiatives were moderately rated (M = 3.02), but qualitative findings revealed significant dissatisfaction, with many respondents perceiving environmental CSI as inadequate. This finding is consistent with Singal (2021), who noted that mining companies often prioritise social development over environmental sustainability within their CSR strategies. Similarly, Seloa and Ngole-Jeme (2022) found that communities in mining areas frequently report negative environmental impacts such as pollution and land degradation, which outweigh perceived CSR benefits. In addition, Bebbington et al. (2018) argue that weak environmental stewardship undermines the sustainability of mining operations and reduces community trust. Therefore, the limited effectiveness of environmental CSI suggests a gap between corporate environmental commitments and actual community outcomes.

Effects on Livelihoods and Community Wellbeing: Although not strongly measured as a separate quantitative variable, qualitative findings indicate that CSI contributes to improved access to services but limited livelihood transformation. Participants acknowledged benefits such as improved infrastructure visibility and social amenities, but also highlighted the absence of sustained economic empowerment. This finding aligns with Bebbington et al. (2018), who argue that mining-induced development often enhances service delivery without significantly improving livelihood resilience. Similarly, Phiri et al. (2019) found that CSI does not substantially improve income generation or reduce poverty in mining communities. Thus, CSI in the Copperbelt appears to enhance social welfare conditions but has limited impact on economic transformation and poverty reduction.

4.2.3 Discussion of Findings: Enhancing CSI Initiatives by Mining Companies in Zambia

Need for a Structured and Strategic CSI Framework: The findings from both quantitative and qualitative data indicate that CSI initiatives in Zambia's Copperbelt Province are fragmented, project-based, and unevenly distributed across sectors. While healthcare and education initiatives are relatively more visible and positively perceived, infrastructure and environmental initiatives remain weak. This aligns with Mutale et al. (2019), who found that CSI in Zambia is often characterised by ad hoc interventions with limited strategic alignment to long-term development goals. Similarly, Mbilima (2021) argues that CSR/CSI in mining is frequently driven by short-term corporate priorities rather than integrated development planning. These findings support the need for a structured CSI framework that aligns corporate investments with community development priorities, national development plans, and Sustainable Development Goals (SDGs), as recommended by ICMM (2022) and Lozano et al. (2015).

Enhancing Community Participation in CSI Design and Implementation: A key qualitative finding under Theme 2 revealed that community participation in CSI processes is limited and largely consultative rather than collaborative. Communities are often engaged after decisions have already been made. This finding is critical for framework development because it directly explains the gap between CSI implementation and perceived effectiveness. This aligns with Kourouma et al. (2023), who emphasize that participatory planning is essential for ensuring that CSI initiatives reflect community needs and priorities. Likewise, Frederiksen (2017) found that exclusionary decision-making structures reduce the developmental impact of CSR in mining regions. Therefore, an enhanced CSI framework must include institutionalised stakeholder participation mechanisms, such as: Community development committees, Participatory needs assessments, Joint planning forums between mines, government, and communities, Such mechanisms would ensure co-ownership of development initiatives, increasing sustainability and trust.

Strengthening Sustainability and Post-Implementation Support: Qualitative findings (Theme 3) revealed that although CSI projects are implemented, there is often limited follow-up, monitoring, and maintenance, leading to reduced long-term effectiveness. This explains why infrastructure and environmental initiatives received lower quantitative ratings (M = 2.88 and M = 3.02 respectively). This finding is consistent with Shoo (2020) and Muruviwa et al. (2018), who observed that many mining-related developments projects fail due to weak sustainability mechanisms and lack of post-project support. From a theoretical standpoint, sustainable development principles (Singal, 2021) emphasize that development interventions must ensure long-term viability rather than short-term delivery. An enhanced CSI framework should therefore incorporate: Post-project maintenance plans, Long-term funding commitments, Community-based management structures, Monitoring and evaluation (M&E) systems. This would ensure that CSI initiatives move beyond project completion to long-term impact sustainability.

Aligning CSI with Community Needs and Development Priorities: The findings suggest a mismatch between CSI interventions and community expectations. While companies prioritise visible infrastructure and social services, communities' express concerns regarding environmental degradation, sustainability, and equitable benefit distribution. This aligns with Mutale et al. (2019) and Tembo (2020), who found that CSR initiatives in Zambia often fail to align with local development priorities due to weak coordination and planning mechanisms. Similarly, Bebbington et al. (2018) argue that mining-led development interventions are often externally driven, resulting in limited empowerment of host communities. To address this, an improved CSI framework should incorporate: Community-led needs

assessments, Alignment with district and national development plans, Prioritisation of long-term livelihood development (not just infrastructure). This ensures that CSI shifts from a corporate-driven model to a community-responsive model.

Improving Transparency, Accountability, and Reporting: Qualitative findings also revealed concerns about transparency and accountability in CSI implementation. Communities expressed uncertainty about how decisions are made and how resources are allocated. This finding is consistent with Mayondi (2024) and Frederiksen (2017), who highlight accountability challenges in mining CSR programmes in Zambia, particularly regarding transparency in resource use and project selection. According to OECD (2021), effective CSR/CSI systems require strong governance structures that ensure accountability to stakeholders. An enhanced CSI framework should therefore include: Transparent reporting systems on CSI expenditure, Public disclosure of project selection criteria, Independent audits of CSI programmes and Community feedback mechanisms. These measures would strengthen trust, legitimacy, and governance integrity.

Strengthening Environmental Sustainability within CSI: The study findings show that environmental initiatives are perceived as weak and less impactful. This is supported by quantitative results and qualitative dissatisfaction expressed by respondents. This aligns with Singal (2021) and Seloa and Ngole-Jeme (2022), who found that mining companies often underinvest in environmental sustainability compared to social infrastructure. Environmental degradation remains a key concern in mining communities, undermining the long-term sustainability of development efforts. An enhanced CSI framework must therefore prioritise: environmental rehabilitation programs, pollution control systems, community environmental education, and climate resilience initiatives. This aligns CSI with sustainable development principles and strengthens the long-term viability of mining operations.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The study concludes that mining companies in Zambia's Copperbelt Province implement CSI initiatives mainly in the areas of healthcare, education, infrastructure development, environmental management, and general community support. However, these initiatives are predominantly visible and project-based, with healthcare and education emerging as the most commonly recognised interventions. The findings further show that community perceptions of CSI are strongly influenced by the visibility of projects such as schools, roads, and water systems. This confirms that CSI is largely evaluated based on tangible outcomes rather than long-term developmental impact. In addition, CSI implementation is characterised by limited community participation, where communities are mostly consulted after key decisions have already been made, reducing ownership and sustainability. In healthcare, CSI improves access to services but remains largely project-based and unsustainable in the long term. In education, CSI enhances access but lacks strong emphasis on skills development and capacity building. Infrastructure development, although visible, is not sufficient to meet community expectations, while environmental initiatives are perceived as weak and ineffective in addressing environmental degradation caused by mining activities.

Enhancing CSI Initiatives for Sustainable Community Development: The study concludes that CSI initiatives in Zambia's Copperbelt are fragmented, short-term, and insufficiently aligned with community needs and sustainable development goals. The absence of structured planning, weak community participation, limited accountability, and inadequate sustainability mechanisms reduces the overall effectiveness of CSI. The study also concludes that there is a significant mismatch between corporate priorities and community expectations. While companies prioritise visible infrastructure and social services, communities emphasise sustainability, environmental protection, and livelihood empowerment. Furthermore, CSI initiatives are largely used as tools for corporate legitimacy and reputation management rather than as fully integrated development strategies. Although CSI enhances corporate-community relations, its developmental impact is constrained by weak governance, limited transparency, and insufficient post-implementation support. Overall Conclusion. In summary, the study concludes that while CSI initiatives by mining companies in Zambia contribute positively to social service delivery and corporate-community relations, their overall impact on sustainable community development is moderate and limited. The effectiveness of CSI is constrained by poor community participation, weak sustainability mechanisms, and insufficient alignment with long-term development priorities.

5.2 Recommendations

Mining companies should transition from project-based CSI approaches to strategic, long-term development frameworks that integrate community priorities and national development plans. Specifically, companies should, strengthen community participation through structured mechanisms such as community development committees and participatory planning forums, align CSI initiatives with Sustainable Development Goals (SDGs) and national development strategies, introducing clear guidelines for CSI planning, implementation, and reporting to ensure transparency and accountability, Enforcing mandatory stakeholder engagement requirements in CSI project design,

Actively participate in CSI planning processes to ensure that development priorities reflect local needs and strengthen community-based monitoring structures to track implementation and sustainability of CSI projects.

Declaration of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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