AN EXAMINATION OF THE EFFECTS OF ARTISANAL AND SMALL-SCALE MINING ON WOMEN AND CHILDREN IN KONO AND BO DISTRICTS OF SIERRA LEONE – A CASE STUDY

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Abstract

AN EXAMINATION OF THE EFFECTS OF ARTISANAL AND SMALL-SCALE MINING ON WOMEN AND CHILDREN IN KONO AND BO DISTRICTS OF SIERRA LEONE – A CASE STUDY

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Low-technology, labour-intensive mineral extraction and processing, commonly referred to as artisanal and small-scale mining (ASM) offers employment opportunities to so many families in Sierra Leone. ASM, mainly in gold and diamonds, is a major non-farm, mostly off-season activity that is a vital source of income for people in rural areas. This study, which was conducted in the Kono and Bo districts, sought to examine the effects of ASM on women and children as a group. It used a qualitative case study to collect primary data and conducted unstructured individual interviews and held focus group discussions with men, women and children in the research communities, employing the purposive sampling approach. Women and children are often poorly paid, discriminated against, suffer sexual and gender-based violence and get injured or sick doing the activities but lack redress systems to support them. ASM is also a contributory cause to land degradation, pollution of water bodies and brings in its wake social problems. However, income from their participation in the ASM or ASM-related activities offers valuable sources of livelihood for their families, significantly contributes to maintaining children in school, increases the dignity of women through their contribution to family expenditure, and supports in meeting other needs. The study found that the factors working against women and children in ASM also result from cultural practices, traditional beliefs and gendered and generational norms that are reinforced by gendered institutions. ASM in Sierra Leone still operates mostly in the shadows and is often illegal and

unregulated, the benefits of which go to the traditional rulers, landowners, financiers and some government officials. This study recommends reviewing and reforming the legal, policy, regulatory and institutional systems to make ASM legal and regulated to 1) raise revenue from its operations through taxes 2) improve the livelihoods of women and children in rural communities 3) protect the rights of women and children involved in the ASM activities, 4) disrupt the informal arrangements that benefit only a privileged few and 5) contribute to meeting the SDG targets.

Keywords: Artisanal and Small-Scale Mining; Women and Children; Unregulated; Sierra Leone

Declaration

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where it states otherwise by reference or acknowledgment, the work presented is entirely my own.

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List of Abbreviations

ACET	African Centre for Economic Transformation
APC	All People's Congress
ASGM	Artisanal and Small-Scale Gold Mining
ASM	Artisanal and Small-Scale Mining
BECE	Basic Education Certificate Examination
BRAT-DO	Bedino-Rung Assessment Tools for Direct Observation
CDA	Community Development Agreement
COVID-19	Conona Virus Disease of 2019
DC	District of Columbia
EIA	Environmental Impact Assessment
GDP	Gross Doemstic Product
HDI	Human Development Index
ILO	International Labour Organisation
MAB	Minerals Advisory Board
NMA	National Minerals Agency
SDG	Sustainable Development Goal
SL	Sierra Leone
SLEITI	Sierra Leone Extractive Industries Transparency Initiative
SLIEPA	Sierra Leone Investment and Export Promotion Agency
SLPP	Sierra Leone People's Party
UNCRC	United Nations Convention on the Rights of the Child
UNDP	United Nations Development Programme
UNEP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USA	United States of America
WASCE	West Africa School Certificate Examination
WHO	World Health Organisation

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CHAPTER 1: INTRODUCTION

1.1 Background

Sierra Leone, a small country of about seven million and five hundred thousand people (Statistics Sierra Leone, 2018) and a former British colony that obtained independence in 1961, is situated on the west coast of Africa bordered by the Republics of Liberia to the south, Guinea to the north and east, and the Atlantic Ocean to the west (Funna, 2020).

The country is a cosmopolitan setting with many and diverse ethnic groups. According to Kormoh (2020), the country is inhabited by the Yaluka, Susu, Koranko to the north, Lukko, Sherbro, Bullon and Temne to the west, Kissi and Kono to the east, and Mende, Sherbro, Krim, Gola and Galina to the south. According to the history of Sierra Leone narrated by Christopher (2017), in 1800, a group of emancipated slaves, known as the Maroons, left Jamaica for the province of Sierra Leone. After the official British abolition of slavery in 1808, nearly 85,000 African re-captives were finally forced to migrate to Freetown by the Royal Navy anti-slave trade patrols. The settlers and re-captives began to integrate into the Krio ethnic group, sometimes known as Creole, by the late 1800s. Until a few decades ago, the capital city, Freetown used to be inhabited mostly by the Creole, descendants of freed slaves, but now a melting pot of all the ethnic groups in Sierra Leone who come to seek other opportunities given the prevalence of poverty in most of the rural areas.

Sierra Leone went through a brutal civil war from 1991 to 2002 during which thousands of its citizens were killed. In the findings of Asangna (2017) and Marks (2019), the war was a result of accumulated ill-feeling by the masses of the population against the ruling elite due to the unequal distribution of wealth and power; and also, a conflict to gain control of the mineral wealth of the country, especially the diamonds found in the northern part of the country. The war recruited many children who were used to terrorise the population with the consequence

of mass population displacements within the country as internally displaced persons and across Sierra Leone to neighbouring countries as refugees (Kieh Jr, 2016).

Since the end of the civil war in 2002, Sierra Leone has had some stability with peaceful transfer of power from one elected government to another, dominated by the two main political parties of the All People's Congress (APC) and the Sierra Leone People's Party (SLPP), with decentralized governance structures at the district and regional levels of the country (Conteh, 2017).

Sierra Leone is endowed with a good tropical climate, rich soils for agricultural activities and natural resources such as land, timber, gold, bauxite, rutile, cobalt, diamonds, coal and iron ore (Jackson, 2016). In spite of such abundance of mineral wealth, the country measures only 0.458 and ranks 184 out of the 192 countries and territories surveyed in the 2021 UNDP Human Development Index (HDI[1]), which puts the country in a low human development category (UNDP, 2021/2022) and also as one of the poorest countries in the world with 56.8% of its population rated as poor (Statistics Sierra Leone, 2018).

Latest statistical data is difficult to obtain but in Sierra Leone, but the mineral extractive sector, mainly diamonds, gold, iron ore and rutile, contributed to 2.7% of gross domestic product (GDP), accounted for 91.1% of all exports in 2016 (SLEITI, 2016) and 80% of export income (Talbot, 2019) thereby making it an indisputably extremely important economic

[1] The Human Development Index (HDI) is a summary measure that assesses long-term progress in three basic dimensions of human development: a long and healthy life, access to knowledge, and a decent standard of living. The HDI was created to emphasise that people and their capabilities should be the ultimate criteria for assessing a country's development, not just economic growth. The higher the HDI score the better the human development and vice versa (Subramanian, 2024)

activity for the country. The mining sector also offers employment to at least 3% of the total labour force in the country, directly or indirectly (Statistics Sierra Leone, 2018) to a large number of Sierra Leoneans, mostly as unskilled labour.

Mabey, Li, Sundufu & Lashari (2020) note that the extraction of minerals in Sierra Leone is mainly divided into large-scale mechanized mining operations and artisanal and small-scale mining activities. The former is carried out by mining companies using machines, and skilled labour, are licensed and regulated by policies, laws and institutions. According to the Sierra Leone Extractive Industries Transparency Initiative (SLEITI) summary data template of 2021, the large-scale mining companies are dominated by Chinese and Western companies such as Marampa Mines, Koidu Limited, Cheng Li Trading Mining, Pan African Rare Metal Mining, Sierra Minerals Holdings No1 Limited, Supreme Minerals Corporation, Kingho Investment Limited, Seawright Mining, Meya Mining, Dayu Mining Limited, FG Gold, Kasino Mining Company, Sierra Rutile Limited, Tonguma Limited, Sierra Diamonds Limited, Wongor Investment and Mining Corporation Limited, Sierramin Bauxite (SL) Limited, and a host of other registered small mining companies (SLEITI, 2021). The Sierra Leone economy has been largely dependent by these large mining companies (Mabey, Li, Sundufu &Lashari, 2020) for its income.

According to Mabey, Li, Sundufu & Lashari (2020), gold and diamonds appear in alluvial deposits in Sierra Leone, which make them open to both large-scale and artisanal and small-scale mining. The latter is composed of mostly gold and diamonds, occurs in many rural communities in Sierra Leone and often done on the blind side of the law and remain largely unregulated, informal, illegal and carried out by groups, individuals and small companies using simple tools and low technology in the mineral extraction with mostly surface expansion rather

than deep underground operations as found in the large-scale mining activities by large companies (Yankson & Gough, 2019).

Minerals used for development activities such as sand gravel and other aggregates are by-products of artisanal and small-scale mining used for the construction of roads, bridges and buildings. Development minerals are secondary reasons for artisanal and small-scale mining in Sierra Leone as the primary intention is the exploitation of gold and diamonds in mining communities in Sierra Leone. However, overshadowing the importance of development minerals such as sand, gravel and other aggregates as a by-product of artisanal and small-scale mining misses the importance that these play in the construction industry and which offer income to many rural people as well (Hilson & Maconachie, 2020a). With artisanal and small-scale mining, aggregates, mostly sand, are a valuable commodity. Geographically, they are widely dispersed over rivers, lakes, and the related paleocoastlines. The increasing need for building materials is being driven by trends in urbanisation and population expansion in Asia and Africa (Bendixen, Best, Hackney & Iversen, 2019). Production estimates range from 35 to 50 billion metric tonnes yearly (Koehnken et al., 2020), albeit they are probably greater.

Typically, in Sierra Leone, women's roles in artisanal and small-scale gold mining are what is referred to as 'conjugal contract' (Rutherford, 2020) which is some sort of agreement for wives to support their husbands in the gold and diamond mining activities playing roles such as collecting water and sand that bears the minerals but short of washing the sand to extract the gold or diamonds. Such women, including the man's daughters or other relatives, are not paid as workers but sometimes compensated due to the different forms of dependency relations with the man by the other family members commonly referred to as 'distributive labour' (Ferguson, 2015).

The large-scale mining sector also contributes to some level of development of communities in which the mineral resources are found. These development projects include road infrastructure, schools, clinics and, water and sanitation facilities, provided by either the mining companies through their corporate social responsibility funding or from the government, district and chiefdom councils through taxes raised from the mining activities (Uduji, Okolo-Obasi & Asongu, 2020). Some percentage of profits realised from the large-scale mining are also ploughed back to communities through community development agreements (Conteh & Maconachie, 2019; Nwapi, 2017) for these communities to use to carry out additional development projects in accordance with their priorities. Conteh & Maconachie (2021), Maconachie & Conteh (2021) argue that in its present form of informality, it is only local chiefs and government officials who benefit from its operations rather than funds for community projects due to the lack of monitoring or accountability for the funds received.

However, notwithstanding the benefits and financial contributions that are realised from the artisanal and small-scale mining, communities have also suffered some adverse effects due to the presence of artisanal and small-mining groups and their activities in these communities. The most vulnerable[2] members of these communities such as children[3] and women suffer disproportionately as a consequence of the artisanal and small-scale mining

[2] The researcher is using vulnerability in artisanal and small-scale gold and diamond mining here to refer directly to the position of women and children in relation to poverty, risks, exclusion and inability to manage and respond to risks which lead to social exclusion, powerlessness, lack of access to basic services and infrastructure, unemployment and diseases. The researcher is also, however, aware of the contentious nature of the word 'vulnerability' as discussed by scholars such as Plagerson (2023). The concept of 'vulnerability' will be approached critically throughout this research.

[3] The Africa Charter on the Rights and Welfare of the Child defines a child as any person, male or female, under the age of 18 years (Sloth-Nielsen, 2017).

(Nightingale, Czyzewski, Tester & Aaruaq, 2017). Many children living in locations where the artisanal and small-scale gold and diamond mining take place sometimes drop out from school to carry out labour at the mining sites, doing stone crushing and other menial activities (Efevbera & Betancourt, 2016) or combine employment in these activities with attending school as income from such employment supports the children to pay for the cost of their education (Maconachie & Hilson, 2016).

This, it is argued, has the double effect of affecting retention in school and involvement in hazardous work for long hours at exploitative wages to support the livelihoods of their families (Ouma, Ting & Pesha, 2017). It is also argued that children involved in artisanal and small-scale mining, like others involved in the sector or living in communities where the activities take place, suffer from health risks associated with the pollution of drinking water sources contributed by chemicals used in mineral processing in mining communities, according to the findings of Mabey, Li, Sundufu & Lashari (2020) and also from human-to-human transmission of diseases due to congested living conditions in makeshift shelters (Corburn & Sverdlik, 2019). Safety risks for women and children are also high as pits abandoned by mining activities are left uncovered and deep tunnels often collapse, thereby rendering particularly women and children vulnerably susceptible to injuries or death in such pits (Smith, Bofinger & Collins, 2016). Women are often subjected to domestic violence from their male counterparts due to unequal power relations (Rutherford, 2020). These males are sometimes induced by alcohol abuse with the money realised from artisanal and small-scale mining (Kotsadam, Østby & Rustad, 2017) to indulge in such gender violence.

In most instances, women are discriminated against (Felt, Soares, Bolding, Tartaglia & Itzkowitz, 2020) because they are not allowed to own land for mining due to gendered land

tenure rights and unequal gender relations in the land tenure system in Sierra Leone (Hilson, Hilson, Siwale & Maconachie, 2018; Wilson, 2019), and this subjects them to being only helping hands in the artisanal and small-scale mining activities and therefore limiting their access to a living wage from these activities, thereby contributing to the perpetuation of their vulnerability and poverty (Brottem & Ba, 2019). School girls are sometimes compelled to go into transactional sex due to inducements with money from migrant workers and peer influence (Ouma, Ting & Pesha, 2017), resulting in teenage pregnancies in many instances and hence leading to school dropout (Knoblauch et al., 2017).

Mining also erodes livelihoods arguably due to agricultural land being used for artisanal and small-scale gold and diamond mining rather than the production of food (Brown, 2020), and also due to previous land used for mining activities not reclaimed for agricultural activities (Fayiah, 2020; Mabey, Li, Sundufu & Lashari, 2020). There have been cases of sexually transmitted diseases reported by women who have been infected by migrant workers in these mining communities (Rutherford, 2020; Wilches-Gutierrez & Documet, 2018). The influx of migrant workers to these communities in which artisanal and small-scale mining takes place increases transactional sex activities (Cham, 2015), and attract teenage girls away from their education (Osei-Yeboah, Adedze, Bannor, Takyibea & Akweongo, 2019).

Money earned and spent extravagantly by the migrant mine workers are also a source of attraction for other females from other communities to these mining centres in search of greener pastures as discussed in the findings of Steen et al. (2019). Exposure to money from being involved in the artisanal and small-scale mining has also introduced children to behaviour and attitudes, including drinking and substance abuse, that have diverged from culturally and traditionally accepted ways such as peaceful co-habitation and mutuality between families, as

noted in the findings of Talbot (2019). In some instances, polygamy has increased and brought about severe hardships to women who share the meagre resources in each household (Solanke, Kupoluyi, Abe & Bankole, 2018), and an increase in domestic violence in many polygamous families has been attributed to financial pressure felt by men, including the perceived competition and rivalry of marrying more than one woman (Andrews & Enns, 2020).

Artisanal and small-scale gold and diamond mining also weakens social ties due to the competition for wealth which tend to shift away from societal traditional reciprocity to support weaker families in communities in times of need (Minas, Ribeiro & Anglin, 2018). This mutuality in communities was believed to have contributed to the foundation of vitality of communities in Sierra Leone, in the observation of Talbot (2019). With artisanal and small-scale mining, communities are sometimes dislocated to new settlements to make land available for mining activities (Fayiah, 2020), with these new settlements being far away from schools, clinics, places of worship and farmlands, which affect mostly the vulnerable such as children and women (Andrews & Enns, 2020; Talbot, 2019).

Reduced government funding for the provision of services in education, water, health and livelihoods which mostly benefit children and women are further exacerbated by extensive corruption in both government agencies and community leaders (Leone, 2021), lack of regulatory mechanisms by agencies with the mandate to do so, and political interference by government officials in the operations of the extractive companies, especially artisanal and small-scale gold and diamond mining (Mebratu-Tsegaye, Toledano & Thomashausen, 2020). As noted in the findings of Dupuy (2017), in large-scale mining, corruption is manifested in tax holidays and lower revenue raised from taxation of extractive companies, with the excuse of luring investors into the country. These companies, in turn, pay unofficial fees to government

officials and chiefs of the mining communities as bribes rather than the payment of realistic taxes to government that could be used for projects that benefit the vulnerable in communities where artisanal and small-scale mining takes place (Marks, 2019; Nest, 2017).

These practices therefore deprive the vulnerable people in these communities such as women and children, of improved facilities in health, education, sanitation, water and livelihoods financed by revenue generated from mining taxes. In addition, domestic revenue generation to support poverty reduction efforts and social infrastructure development in health, water, education and poverty reduction, is undermined as the companies are involved in practices of using the company's "network of affiliates to deflate prices or inflate costs including financial interests so as to reduce taxable income" (Mebratu-Tsegaye, Toledano & Thomashausen, 2020, p.4). This is a phenomenon, known as transfer pricing, which facilitates the repatriation of profits to parent companies outside the country with the excuse of overseas procurement at overpriced rates (Le Grange, 2017; Mebratu-Tsegaye, Toledano & Thomashausen, 2020), has the potential to affect mining communities and the well-being of the vulnerable groups in society such as children and women. Taxes on declared profits, therefore, do not yield significant income for the country (Frankfurter et al., 2018) for national development and economic progress.

There is a Mines and Minerals Act of 2009 which is yet to be enforced either due to lack of political will or insufficient technical knowledge to set up the relevant structures to enforce it (Williams & Le Billon, 2017). The lack of enforcement and regulation results in artisanal and small-scale mining companies operating at free will with little supervision to ensure that they comply with the policies of the Mines and Minerals Act and these lead to severe environmental degradation and loss of revenue that could be used to support the

development efforts of communities and benefit the vulnerable populations such as children and women as asserted in the findings of Williams & Le Billon (2017).

On the flip side, there is abundant documentation and evidence of how artisanal and small-scale gold and diamond mining is socially and economically beneficial to women and children in the empirical literature. Maconachie & Hilson (2016) found out in Sierra Leone that income from children's involvement in artisanal and small-scale mining supports them in school and also contributes to the livelihoods of their families. In addition, they are able to learn new skills through their involvement in such activities (Potter & Lupilya, 2016) which can be useful for their own survival and the survival of their families in the future.

Arthur-Holmes & Busia (2020) have noted that the involvement of women in artisanal and small-scale mining positively impacts their household bargaining power because of the contribution of income to household livelihoods and therefore changes the household dynamics such as in childcare and, women have consequently declined to pool their income with their husbands because of the influence of social norms which frowns on them doing so. They use the income from mining activities to increase their bargaining power with regard to decision-making processes concerning family size, the education of their children, choice of food to cook and acquisition of personal assets.

It has been found out that involvement in artisanal and small-scale mining offers women a reliable and stable source of income not only to contribute to household expenditure but with which to procure properties such as small ruminants to raise, according to the findings of Buss, Rutherford, Sebina-Zziwa, Kibombo, & Kisekka (2017). Such property come in handy as a fall-back position in times of need without having to rely heavily on their husbands or relatives.

As Danielsen & Hinton (2022) observed, other benefits of artisanal and small-scale mining to women and children are the skills they acquire in the tasks they perform, the social networks and influential relations that they build at the mine sites and outside to enhance their benefits and to stay connected.

Government revenue raised from mining activities contribute to provide social and economic infrastructure such as drinking water, roads, schools and clinics to communities to improve their well-being and standard of living (Fayiah & Fayiah, 2024).

Notwithstanding the huge benefits that women derive from their participation in artisanal and small-scale mining, there are still some barriers that prevent them from attaining maximum benefits. According to Adomako & Hausermann (2023) and Buss, Rutherford, Sebina-Zziwa, Kibombo & Kisekka (2017), women's 'triple work burden' does not allow them to appropriate the full benefits of their involvement in the mining activities. Biologically, women become pregnant for about nine months and thereafter have to breastfeed the child for some time. Such biological responsibility limits the time available for full participation in and benefits from the artisanal and small-scale mining activities. In addition, most women in Sub-Saharan Africa are also saddled with the traditional and cultural responsibility of caring for the sick and the elderly, both unpaid family responsibilities and a limiting factor in gainful employment. Ferrant, Pesando & Nowacka (2014) have established that unpaid care work has major implications for women's ability to actively take part in the labour market and the type of employment. Generally, the greater the proportion of women's time going into care work the less they are able to engage in skilled professions. Samtleben & Müller (2022) note that full-time work is particularly affected by unpaid care and housework obligations, and increasing men's share of household chores enhances women's employment and working

hours, a cultural norm that will be a daunting task to implement in the context of Sierra Leone. The third work burden is paid labour of women, such as the daily wages they earn being involved in artisanal and small-scale mining activities in the rising labour market participation and the active labour market policies based on the assumptions that all individuals, male or female, who are able must enter paid employment to encourage economic competitiveness and reduce social exclusion (Ortiz-Ospina, Tzvetkova & Roser, 2024). This 'triple burden' that affects women's meaningful participation in the labour market weakens their ability to compete on equal basis with their male counterparts.

This research will therefore look into how women and children are involved in artisanal and small-scale mining and reasons why these women and children who are already unfavourably influenced by unequal power relations, harmful traditional practices and gender norms and gendered institutions, are further worsened by the presence and exploitation of artisanal and small-scale mining in their communities or how income and other benefits derived from their involvement in artisanal and small-scale mining activities have positively impacted on their lives and reduced their vulnerability.

1.2 Statement of the Problem

Artisanal and small-scale mining has remained a controversial issue in Sierra Leone. There are debates as to whether the abundance of such wealth is a blessing or curse to the country and the communities in which they are found (Hilson & Maconachie, 2017). The current literature (Hilson, Hilson, Siwale & Maconachie, 2018; Hilson & Osei, 2014; Schwartz, Lee & Darrah, 2021; Smith, Ali, Bofinger & Collins, 2016) suggests that children and women in communities where extractive activities, especially artisanal and small-scale mining, take place in Sierra Leone are adversely impacted by these activities. As vulnerable groups, they

are affected economically, socially, culturally and politically due to inadequate enforcement of policies on minerals and mining, inadequate infrastructural development, health issues, low wages and gender and age-based discrimination (Bo, Bonthe & Leone, 2018; Talbot, 2019) and a consequence of corruption in the mining sector (Dupuy, 2017; Siegel, 2020).

International Women in Mining (2021, p.4) note that "despite the significant number of women and children involved in artisanal and small-scale mining, there is a serious lack of their recognition in almost all spheres, including development programmes, public and private sectors, mining communities, or even academia" and how they are affected by their involvement in the activities. Schwartz, Lee & Darrah (2021) have pointed out that children working in artisanal and small-scale mining often face enormous health and social challenges in Sierra Leone including illness, injuries from accidents, violence, criminality, school dropout, drug abuse, prostitution, teenage pregnancies, fighting for resources, psychological issues and some times even war. Schwartz, Lee & Darrah (2021*)* have also found out that artisanal and small-scale mining, much as it is a poverty reduction strategy for so many rural people including women and children, is a notoriously dangerous activity for women and children and often has dire health and safety consequences for the miners, their families and communities, and these have not been fully addressed by scholarly literature and/or regulatory bodies. The type and severity of the occupational, environmental, health, safety and social issues experienced by families and communities engaged in artisanal and small-scale mining activities include chemical exposures related to elevated levels of mercury, cyanide, methane, dihydrogen sulfide, and carbon monoxide; silicosis, tuberculosis, lung cancer diseases from dust inhalation; musculoskeletal disorders, overexertion, trauma caused by heavy lifting, lugging, digging and falling. Others include health risks from lead, methylmercury, cadmium,

and other metal accumulation due to accidental chemical exposure; mosquito-borne diseases such as malaria and dengue caused by mining-related stagnant small water bodies, and hearing, heat stroke, death from mine cave-in, flooding, asphyxiation and drowning. Schwartz, Lee & Darrah (2021) add that lifestyle and occupation interactions can cause sexually transmitted infections, and comorbidities such as silicosis, HIV, and tuberculosis.

Artisanal and small-scale mining can also bring about inadequate social networks and chronic stress leading to psychological distress, anxiety, depression, sleep loss, impaired immunity, triggering other problems. It is also noted, as occurred in Sierra Leone in the 1990s, that the competition for the mineral wealth can actually ignite conflict with its consequences of death, mass population displacement and destruction of vital infrastructure, misery and social disorientation. A further elaboration of the negative effects of artisanal and small-scale mining on communities and families is attached as Appendix J.

There is limited information and data on the number of women and children employed in the artisanal and small-scale mining sector in Sierra Leone but the narratives in the published literature point to the fact that the participation of women and children form over 50% of the workforce in the sector of artisanal and small-scale mining (Ofosu, 2022) and the 'vulnerable employment rate' in Sierra Leone is greatest among women (Hilson, Hilson, Siwale & Maconachie, 2018). Currently, for women across sub-Saharan Africa and by extension Sierra Leone, less than 23% of them are employed as salaried and waged workers as established by the ILO (2017). The ILO further queries that:

> Within the informal economy (in sub-Saharan Africa), women are concentrated in the lower end where decent work deficits are the greatest. Outside of agriculture, women are in the least protected and most precarious forms of work, including as domestic

> workers, unpaid contributing family workers and industrial outworkers. Those in this last category have some of the lowest average earnings of all, since they often lack firm contracts, they may not be paid for months, and they are made responsible for non-wage costs of production. (p. 32)

Women are often disproportionately employed in the informal sector including artisanal and small-scale mining, throughout the region, often taking on hazardous and laborious jobs (Lahiri-Dutt, Amor & Perks, 2021). Hilson, Hilson, Siwale, & Maconachie (2018) have indicated that:

> Most of these women manage what is referred to in the literature as 'household enterprises,' showing enormous courage, commitment, and business acumen in an effort to provide for their families while typically juggling this work with their family responsibilities, despite what at times seem to be impossible circumstances. (p.310)

The World Bank found out that the economies in sub-Saharan Africa have restrictions on women's employment comprising 43 percent, 51 percent and 9 percent, respectively, in 1) 'Jobs deemed hazardous, arduous or morally inappropriate', 2) particular industries and 3) night work (Iqbal, 2018). It has also been established that women involved in artisanal and small-scale mining work very hard with their family members and children for long hours on activities that can be 'demanding, dangerous and difficult in communities where artisanal and small-scale mining takes place' and in activities where they earn only modest income and this can further worsen their already heavy domestic workload (Hilson, Hilson, Siwale, & Maconachie, 2018).

Children have been reported to benefit from the income they earn from their involvement in the activities of artisanal and small-scale mining which contributes to

supporting their education and the livelihoods of their families (Hilson & Maconachie, 2016). Conversely, they have also been reported to be engaged in the worst forms of labour, doing hazardous mining tasks at artisanal and small-scale mining sites. This is said to affect their education through high school drop out rates (Eduful et al., 2020), their health and safety through mercury poisoning and injuries and the acquisition of bad habbits such as drinking and smoking at an early age. The girls are also reported to have suffered from sexual and gender-based violence such as teenage pregnancies, early marriages and other forms abuses and discrimination (Makaza & Chimuzinga, 2020)

Non-governmental organisations' field reports, media reports and a review of the poverty profile of Sierra Leone point to the information that communities in which minerals are found and artisanal and small-scale mining take place, to the contrary, are as deprived, if not more deprived and do not benefit much from such wealth, with children and women particularly not adequately or proportionately benefitting from the presence of such wealth and activities (Rutherford, 2020).

Akiwumi & Hollist (2016); Bo, Bonthe & Leone (2018); Hilson, Hilson, Siwale & Maconachie (2018); Mabey, Li, Sundufu & Lashari (2020) have carried out studies on the role and impact of extractive activities, especially artisanal and small-scale mining, on communities. However, the purposes of the studies have been broad and general on its effects on whole communities or dealing with other problem statements and issues rather than specific to women and children collectively as a vulnerable group. The studies have acknowledged limitations on specific groups such as children, women and the aged (Akiwumi & Hollist, 2016); inclusive sampling of locations of study (Mabey, Li, Sundufu & Lashari, 2020); methodology for the studies which employed largely desk reviews, literature survey and key

informant interviews without the benefit of in-depth collection of primary information and data (Bo, Bonthe & Leone, 2018; Hilson, Hilson, Siwale & Maconachie, 2018).

The paucity of specific in-depth studies focusing on children and women impacted, positively or negatively, by artisanal and small-scale mining to illuminate the experiences of the most vulnerable tend to be hidden from view in commercial activities and in research. Limited research on women and children together, who already suffer from unequal power relations, harmful traditional practices and gendered norms, pose problems in the provision of useful evidence to support regulation, policies and programmes directed at these groups. Further research on the interaction effects of these issues, and their influence on women and children would help to reduce the negative impacts on these groups, while optimizing and consolidating the positive effects on them, and this is the starting point of this research.

1.3 Purpose of the Study, Research Aims, and Objectives

1.3.1 Purpose of the Research

This research will seek to prioritise the lived experiences of women and children working in small-scale and artisanal mining, to make sure that their opinions are heard, to understand their needs, anxieties, and goals, and to inform potentials for positive change.

To facilitate and validate such a change, the purpose of this qualitative research is to examine and analyse the impact of artisanal and small-scale gold and diamond mining, on women and children from their own lived experiences and perspectives in Bo and Kono districts in the Republic of Sierra Leone.

Women constitute over 52% and children under 20 years 53% of the total population of Sierra Leone (Statistics Sierra Leone, 2018) and are therefore a large constituency of the population who are most at risk from the cultural norms practiced in Sierra Leone (Cornish et

al., 2019). In addition, women and children constitute the bulk of underpaid, unskilled migrant and non-migrant workers in the artisanal and small-scale mining sector, of about 35% and 23% respectively (Margolis, Rosas, Turay & Turay, 2016). This research will therefore contribute to an increased understanding of how women and children are collectively affected by artisanal and small-scale gold and diamond activities in the research communities.

1.3.2 Research Aim

This research aims to examine the real-life experiences of women and children involved in small-scale, artisanal gold and diamond mining to learn more about the consequences these activities have on them as well as how and why those effects arise. The research also aims to explore how any adverse effects could be minimised and positive effects increased to offer women and children in artisanal and small-scale gold and diamond mining communities' alternative livelihoods. Furthermore, this research will look into any economic and social options available to improve their well-being, welfare and increased benefits from artisanal and small-scale mining activities and make recommendations on any reforms needed to achieve this aim.

1.3.3 Objectives of the Research

The objectives of this research are:

1) To assess the extent to which artisanal and small-scale gold and diamond mining activities have contributed to marginalization, deprivation and poverty entrapment of women and children through their informal participation in low-technology, labour-intensive processes;

2) To evaluate the extent to which the dependence by women and children on income from artisanal and small-scale gold and diamond mining activities for the livelihoods of their families have increased or reduced their vulnerability so that we understand how their lives may be improved;

3) To examine ways in which the realities of children and economic exploitation by the artisanal and small-scale gold and diamond mining sector affect their education and make it difficult to eliminate their involvement in child labour in mining activities; and

4) To assess the weaknesses in regulations that protect women and children, to find out what are the main financial leakages for education and health facilities from artisanal and small-scale gold and diamond mining activities.

1.4 The Nature and Significance of the Study

This research will employ the qualitative methodology, consistent with the naturalistic approach (McInnes, Peters, Bonney & Halcomb, 2017) and will embrace phenomena by analyzing behaviours, relations and experiences of women and children in artisanal and small-scale gold and diamond mining in selected communities in Kono and Bo districts of Sierra Leone without the use of complex statistical methods or the processing of numerical data (Hennink, Hutter & Bailey, 2020). The qualitative approach is appropriate because the research will seek to answer questions such as ‘how’, ‘why’ ‘what’ and ‘where’ artisanal and small-scale gold and diamond mining activities affect children and women. The qualitative approach will also use interpretative techniques to develop the research with the participants by giving a good opportunity to understand deliberations on the lived experiences of participants (Alase, 2017). A case study method will be used to provide an opportunity for the research to gain a deep and holistic view of the research problem, and will enable describing, understanding and

explaining the research problem or the situation of artisanal and small-scale gold and diamond mining in the communities (Baskarada, 2014). The approach as a methodology has the power to explore significant lived experiences of hardship, coping strategies, exploitation, dependency and benefits that other research methodologies do not allude to and to discover how much agency participants can have in such disabling and/or enabling situations and environments (Miller, Chan & Farmer, 2018).

A nonprobability sampling technique, purposive sampling, will be employed in recruiting the research participants. Purposive sampling helps decide what needs to be known about artisanal and small-scale gold and diamond mining activities and sets out to find people who can, are willing and capable of providing the information by virtue of their knowledge of, or experience in, the artisanal and small-scale gold and diamond mining activities (Sharma, 2017; Sibona, Walczak & White Baker, 2020).

The data collection tools will use semi-structured or unstructured individual interviews, focus group discussions and direct field observations to collect primary data from the research participants (Barrett & Twycross, 2018). Individual interviews give the most direct and straightforward approach to gathering detailed and rich data regarding the effects of artisanal and small-scale mining on women and children, while the focus group discussions will gather the group views and give an opportunity to collect rich information and data from the groups (Moser & Korstjens, 2018) on artisanal and small-scale mining.

A manual thematic analysis will be used to describe and interpret the information and data. The textual data will be transcribed, familiarized, coded and patterns, categories and final themes refined. The themes will then be interpreted and analysed to obtain the results from the

data and information gathered from the interviews and group discussions (Vaismoradi, Jones, Turunen & Snelgrove, 2016).

Artisanal and small-scale mining in gold and diamonds in Sierra Leone have gained recognition because of its immense contribution to employment and livelihoods in rural communities, its share of mineral income from mineral exports and its negative environmental, social and health impacts on communities where the mining activities take place (Hilson & Maconachie, 2020; Ibrahim, Rutherford & Buss, 2022). However, the effects of artisanal and small-scale gold and diamond mining on the large numbers of women and children who participate in the activities have not been deeply explored.

The significance, importance and relevance of this study is therefore to generate information on how women and children are either positively or negatively affected by their involvement in artisanal and small-scale gold and diamond mining relevant to policy formulation, implementation and change in the artisanal and small-scale gold and diamond mining sector that will contribute to meeting the Sustainable Development Goals (SDGs) of 2015 especially Goal 1 (eradicating poverty), Goal 4 (quality education), Goal 5 (ending discrimination against women and girls), Goal 8 (decent work and economic growth) and Goal 10 (reduced inequalities). This contribution to meeting these goals will be guided by the formulation of sustainable and measurable indicators in the artisanal and small-scale gold and diamond mining sector for the reduction of the negative impacts and improvement of benefits to women and children involved in the sector.

Another significance of this study is to generate information and data to influence policies, legislation, laws and institutional reforms on artisanal and small-scale gold and diamond mining in Sierra Leone. Artisanal and small-scale mining gives opportunities to many

Sierra Leoneans to reduce poverty and offers livelihood opportunities for so many families, especially in the rural communities (Hilson, Hilson & Siwale, 2018). It has the potential to transform the economy of Sierra Leone if well managed through the generation of employment, income from taxes and the needed foreign exchange earnings (Hilson & Maconachie, 2020a, Maconachie & Conteh, 2021). Many Sierra Leoneans conceive that communities in which artisanal and small-scale gold and diamond mining activities are found fare better than those without minerals (Dupuy, 2014) through government laws that aim to plough back some of the profits from mining companies to address the negative environmental and social effects of the mining activities or through mining companies' corporate social responsibility funds for community development. However, this has disappointingly not been the case for Sierra Leone.

Williams & Le Billon (2017) put it forthrightly that:

> when fund management is purposely delegated to unaccountable local institutions such as traditional or customary authorities, the likelihood is high that benefits will be unequally distributed and that these local elites will instead 'grab' more than they are fairly entitled to through corrupt behaviours. (p.69)

The data and information generated by this study will therefore inform and influence reviews and reforms in the legal, policy, regulatory and institutional systems with a view to making artisanal and small-scale gold and diamond mining more beneficial to mining communities and the women and children who live in these communities.

This study will highlight the specific needs, concerns and aspirations of women and children together as a vulnerable group in artisanal and small-scale gold and diamond mining in Sierra Leone. Current studies have dealt with the gendered dimensions of women's involvement in mining activities in Sierra Leone and how they are socially and economically

disadvantaged as a consequence (Hilson, Hilson, Siwale & Maconachie, 2018) and child labour and health issues associated with children's involvement in mining activities (Leone, 2021; Schwartz, Lee & Darrah, 2021) but none of the studies have looked into how women and children together as a vulnerable group has been affected by their participation in artisanal and small-scale gold and diamond mining because of their common and intermingled characteristics. This study will therefore contribute new and original knowledge on the collective effects of artisanal and small-scale mining on women and children.

This research will fill gaps, and contribute knowledge to the specific conditions of women and children in order to provide strong evidence to inform and influence the actions of government, district councils, members of parliament, advocacy and rights-based non-governmental organisations, women's activists, children's rights organisations and community leaders on issues related to artisanal and small-scale gold and diamond mining activities that focus on women and children.

In addition, this research will put forth an implementation model to address the negative consequences of the involvement of women and children in artisanal and small-scale gold and diamond mining and articulate reforms in laws, policies and institutions that recognize the invaluable participation and contribution of women and children in the sector that aims to protect them and increase their welfare in the artisanal and small-scale gold and diamond mining activities.

An important significance of this study, therefore, is the benefits the women and children involved in artisanal and small-scale mining will receive through reforms in policies, regulations and institutions that have oversight on the sector. These benefits will contribute to the reduction in the negative impact and the enhancement and consolidation of benefits to

specifically women and children in artisanal and small-scale mining and communities where mining takes place in general.

This research will explore more about any disadvantages that communities with artisanal and small-scale mining activities take place in order to improve the well-being of these communities, and women and children. Notwithstanding the contribution of extractive activities, especially artisanal and small-scale mining, which contributes nearly 40% of all diamond shipments, 24% of GDP and 80% of all export revenue (Leone, 2021) to the economy of Sierra Leone, it is already well documented that the activities of the extractive companies have had negative impact on communities, especially vulnerable groups such as women and children (Mabey, Li, Sundufu & Lashari, 2020). There have been several studies on school dropout in Sierra Leone (Collier, 2016; Kamara, 2019; Kamara, 2020a; Novelli & Higgins, 2017) but none of the available studies has looked particularly at the contribution of extractive activities, especially artisanal and small-scale mining, to the reduction or increase in such high dropout rates, especially at the basic level. In addition, the studies that have been conducted on the poor health of children (Brolin Ribacke et al., 2016; O'Connor et al., 2019; Robinson, 2019) have not considered the contribution and effects of artisanal and small-scale mining to the situation of children and their mothers. Additional work done on the situation of women in Sierra Leone (Engwicht, 2018; Hilson, Hilson, Siwale & Maconachie, 2018; Huggins, Buss & Rutherford, 2017; Ibrahim, Rutherford & Buss, 2020; Rutherford, 2020; Wilson, 2019) has not also fully explored the contribution of artisanal and small-scale mining to the worsening or improvement in the poor remuneration of women, access to and control over mining land, teenage pregnancies, early marriages, difficult intra-household dynamics and unequal decision-making and power relations, loss of livelihoods and poor health status of women and children.

Dupuy (2017), Siegel (2020), Williams & Le Billon (2017) have all described the pervasiveness of corruption in the extractive sector but have not linked the problem to how women and children are specifically affected. The gaps in specific issues for children and women related to extractive activities, especially artisanal and small-scale mining, do not explain and expose the impact of these activities on such vulnerable members of the communities.

Without such information and data, it is unlikely for policies, legislation and laws on artisanal and small-scale mining that support children and women to succeed in addressing their specific needs, concerns and aspirations, including other potential benefits for women and children with disabilities, communities and companies, for example, provision of good drinking water and good quality teaching and accessible schools.

The above areas of significance of this research will form the basis for the practical implementation of the recommendations to be provided by the findings of this research.

1.5 Research Questions

The questions for this case study research are meant to provide space for a reflective and interrogative process that gives shape and direction to the data collection to achieve the aim and objectives of this research. There are no hypotheses to test for this qualitative research (Zahle, 2023). The research questions for this study are:

1.4.1 RQ1: How do perceptions and experiences of vulnerability feed into the experiences of women and children involved in artisanal and small-scale gold and diamond mining activities?

The extant literature is contradictory on whether artisanal and small-scale mining reduces or increases the vulnerability of women and children who already suffer from some forms of marginalization, deprivation and low status in communities in Sierra Leone

(Omotehinse & Ogunlade, 2022), regardless of whether artisanal and small-scale mining takes place in these communities or not. While some schools of thought agree that women and children immensely benefit from and therefore reduce their societal vulnerability through their involvement in artisanal and small-scale mining (Ibrahim, Rutherford & Buss, 2022) because of the income derived from their employment in the mining activities, other scholarships have a contrary view.

Ibrahim, Rutherford & Buss (2022) suggest that gendered norms and relationships in artisanal and small-scale mining work against women thereby contributing to increase their vulnerability. Individual interviews and focus group discussions will be held with women and child participants to understand their lived experiences with their involvement in artisanal and small-scale mining and whether their vulnerabilities have reduced or increased.

1.4.2 RQ2: How do women and children experience greater or less forms vulnerability within artisanal and small-scale gold and diamond mining communities, and how do they perceive the barriers to greater forms of autonomy/empowerment?

While this question relates to the first question with regard to perceptions about vulnerability of women and children who participate in artisanal and small-scale mining activities, it expands on the first question by exploring further to understand what are the obstacles and challenges to them gaining increased self-sufficiency, financial independence and empowerment through their involvement in artisanal and amsll-scale mining. This question explores their experiences with regard to equal and comparable opportunities with men. While some academics argue that due to the informal and illegal nature of artisanal and small-scale gold and diamond mining in Sierra Leone, entry barriers are minimal for children and women (Paschal & Kauangal, 2023), it is not properly understood whether such low barriers of entry translate into increased autonomy and empowerment for the women and children who

participate in the mining activities. Women and child participants in the research communities, through the individual interviews and focus group discussions, will attest whether such barriers lie with acquisition of mining rights, policies, institutions, traditional and/or cultural practices and how these may be reformed to offer better opportunities for women and children in artisanal and small-scale mining.

1.4.3 RQ3: What are the impacts of working within artisanal and small-scale gold and diamond mining activities for women and children, especially in providing opportunities and restrictions on their lives?

Involvement in artisanal and small-scale mining affects women and children differentially and also differently from men. This question seeks to dig into limitations and prospects for women and children in artisanal and small-scale mining and how they are affected. The literature reveals that women's multiple roles such as housework, reproductive roles, gendered and stereotypical roles, traditional and cultural practices, policies and institutions; and children's other roles such as attending school, taking care of siblings, taking care of livestock, may limit the positive impact on them in their involvement in artisanal and small-scale gold and diamond mining, and factors exacerbating or mitigating inequities in power, the distribution of wealth, and susceptibility to poverty based on the lived experiences of the women and children involved in the mining activities. Perhaps one of the most interesting determinants of the roles and responsibilities of women and children involves the type of commodity mined, in this case mostly gold and diamonds, and to a limited extent, sand and gravel aggregates. The study will explore whether, how, and to what extent the type of mineral mined affects women and children.

1.4.4 RQ4: How do social norms work against women and children in mining activities?

Women and children are involved in artisanal and small-scale mining in large numbers across many rural communities in Sierra Leone, and income realised from these activities are a crucial contribution to their livelihoods. However, it is not fully understood how social norms, traditional beliefs, power relations and gendered relations, norms and institutions enhance or work against their socio-economic development and beneficial participation in the artisanal and small-scale mining activities. This question seeks to better understand the gendered and generational dynamics in artisanal and small-scale gold and diamond mining activities in Sierra Leone. This question will also explore the gendered social and political institutions that structure livelihoods in artisanal and small-scale gold and diamond mining, ranging from kinship arrangements to formal and informal institutions that operate within mining communities.

These questions will serve as tools for planning and implementing the research process, for the analysis of the data collected and for writing up the research findings (Swaminathan & Mulvihill, 2017). However, the initial research questions will be broad and open, and subject to unexpected findings but refined over time to be more specific and focused or more questions asked as the research process evolves and the design emerges.

The interpretative phenomenological analysis approach will be used to analyse the data collected, and the questions will look at the ‘what’, ‘how’ and ‘why’ (Korstjens & Moser, 2017) women and children are differently and most affected by artisanal and small-scale mining activities.

CHAPTER 2: LITERETAURE

2.1 Introduction

The literature review is an attempt to unravel a complex puzzle, shedding light on the multifaceted effects of artisanal and small-scale mining on women and children in Sierra Leone. It begins by delving into a decade's worth of scholarly works from various geographic locations, employing a funnel approach to distill insights from primary research reports and academic journals (Galvan & Galvan, 2017). This meticulous search not only facilitates a comprehensive understanding of artisanal and small-scale mining's impact on women and children but also sets the stage for uncovering potential gaps and areas for further exploration.

The preceding decade of literature review was chosen as a cut-off period because the studies on artisanal and small-scale mining have gained a lot of interest and the issues about the topic are dynamic, and connected to broader economic, political and social issues (Adranyi, Stringer & Altink, 2023) and any literature on the subject of study over a decade would have obsolete findings, in most cases, and therefore lost its essence. Any reference to literature beyond the past decade are either due to the lack of latest scholarships on the issue or related to the enactment of policies, conventions and laws at the time.

As the literature review progresses, it uncovers the intertwined narratives of artisanal and small-scale mining's evolution, its economic significance, and its repercussions on gender dynamics and child agency. Through an in-depth analysis, the review elucidates how artisanal and small-scale mining serves as both a source of livelihood and a sector of exploitation for women and children, highlighting the stark contrasts between its positive contributions and detrimental effects (Terrell, 2022). Moreover, by scrutinizing traditional beliefs and cultural practices surrounding artisanal and small-scale mining, the review exposes the entrenched

inequalities that perpetuate gender disparities within the sector, often mediated by genedered institutions.

Amidst these revelations, the literature review emerges as a key to unlocking critical insights into the ongoing discourse on artisanal and small-scale mining formalisation. It navigates through divergent perspectives, exploring governments' push for formalisation, operators' resistance, and the differential impacts on women and children (Creswell, 2014). By synthesizing theoretical frameworks and empirical evidence, the review lays the groundwork for understanding the complex interplay between policy interventions, societal norms, and individual livelihoods within the artisanal and small-scale mining landscape.

Yet, as the puzzle unfolds, intriguing findings surface, challenging conventional wisdom and prompting deeper inquiry. The unexpected prevalence of female participation in artisanal and small-scale mining defies traditional gender roles, hinting at underlying socio-economic dynamics unique to Sierra Leone (Komba et al., 2023). This revelation underscores the need for nuanced research to unravel the complexities of women and children's experiences within the artisanal and small-scale mining sector, offering a glimpse into the intricacies of labour market dynamics and cultural norms that shape their choices.

In essence, the literature review serves as a compass, guiding researchers through the labyrinth of artisanal and small-scale mining's impact on women and children in Sierra Leone. It not only illuminates the path forward but also underscores the urgency of addressing the puzzle that lies at the intersection of policy, practice and, gender and generation dynamics. As scholars embark on this journey, armed with insights gleaned from the literature, they are poised to unravel the mysteries surrounding artisanal and small-scale mining and pave the way for more inclusive and equitable interventions.

2.2 Theoretical Frameworks Guiding the Study

The theoretical frameworks serve as the backbone of a research project, guiding the selection of topics, development of research questions, and design approach (Osanloo & Grant, 2016). They play crucial roles in providing structure and support for the study's rationale, problem description, purpose, significance, and research questions (Grant & Osanloo, 2014). Guided by robust theoretical frameworks gives inspiration and motivation for the careful planning and critical thinking, as they serve as the blueprints for the entire dissertation process (Osanloo & Grant, 2016).

In this case study focusing on the effects of artisanal and small-scale mining on women and children in Sierra Leone, three theoretical frameworks are employed: gender, parental characteristics, and the new sociology of childhood models. These frameworks offer structured approaches to understanding the complex issues faced by women and children involved in artisanal and small-scale mining activities, capturing social, economic, political, and environmental influences. They also aid in delineating the scope of the literature review and guide the design and execution of the case study in Sierra Leone's Kono and Bo districts.

By drawing on these frameworks, the study aims to provide a comprehensive analysis of the experiences of women and children in artisanal and small-scale mining communities, supporting data interpretation and the formulation of recommendations. Ultimately, the integration of these theoretical perspectives enhances the depth and rigour of the research, facilitating a nuanced understanding of the multifaceted challenges and opportunities inherent in artisanal and small-scale mining activities for women and children.

2.2.1 Gender Theoretical Framework

In the theoretical framework of gender theory, gender is commonly understood as the culturally assigned expectations dictating the roles and behaviours of individuals within society, distinguishing between socially constructed roles and biologically determined aspects of being male or female (Street & Dardis, 2018). Gender theory encompasses the examination of what is perceived as masculine, feminine, or queer behaviour within various contexts, communities, societies, and fields of study (Jule, 2014), spanning disciplines such as literature, history, education, applied linguistics, philosophy, sociology, and cultural studies. The interchangeability of the terms "gender" and "sex" sometimes leads to confusion, despite sex being biologically determined and categorising individuals as male or female (Schellenberg & Kaiser, 2018).

Gender is conceptualised as a multi-dimensional structure of inequality, with influences operating at individual, interactional, and macro levels, particularly reflecting the lived experiences of women (Schellenberg & Kaiser, 2018). This framework is relevant for analysing the impacts of artisanal and small-scale mining activities on women and children, as women tend to have a more significant role in these activities compared to large-scale mining operations (Hinton, Hinton & Veiga, 2017). The extent of women's involvement in artisanal and small-scale mining activities varies between and within countries and over time depending on factors such as the proximity of mining operations to communities and the types of minerals extracted (Lynas, 2018). Women and children may engage directly in mining activities if the mines are located near their homes or communities, while they may provide ancillary services such as selling food and beverages if the mines are farther away. However, their contributions

to artisanal and small-scale mining activities are often not fully recognised when they are involved indirectly.

In the context of gender theory, despite women being heavily involved in the artisanal and small-scale mining sector, men predominantly retain control and ownership over mining assets (Danielsen & Hinton, 2020). The lack of inclusivity in the distribution of economic benefits from artisanal and small-scale mining activities along gender lines raises concerns regarding equitable growth. It is imperative for both women and men to actively participate in the growth process for development to be truly inclusive and beneficial to all citizens, as evidenced by lower participation and benefits for women compared to men in Sierra Leone (Baah-Boateng, Baffour & Akyeampong, 2018).

At the individual level, such as the individual participation of women in artisanal and small-scale mining activities, the gender framework within gender theory emphasises the socialisation process, the internalisation of gendered identities (Gansen & Karin, 2018), and the role of physical bodies in perpetuating gender disparities. Social interactions are influenced by expectations and biases, shaping the dynamics between men and women (Chaves & Wingfield, 2018; Fisk & Ridgeway, 2018). On a macro level, gender theory examines how institutional regulations and cultural ideologies perpetuate patterns of gender inequality (Chatillon, Charles & Bradley, 2018).

Despite women's significant contributions to artisanal and small-scale mining activities, for example, the unequal ownership and control of mining assets result in disproportionate benefits for men. Recognising women's roles in these activities and ensuring their equitable participation can enhance gender equity, household incomes, and overall welfare (Ibrahim, Rutherford & Buss, 2020). The gender framework also highlights women's indirect

contributions to artisanal and small-scale mining through activities such as providing food, water, and selling goods at mining sites (Eftimie, et al., 2012).

2.2.2 Parental Characteristics Framework

Within the parental characteristics framework, the involvement of children in artisanal and small-scale mining activities in Sierra Leone, is analysed through the lens of parental decision-making and household dynamics. This framework posits that in patriarchal and cultural settings like Sierra Leone, decisions regarding the allocation of household resources, including the utilisation of child labour, are often controlled by one parent, typically the father (Fors, 2012). The preferences and priorities of this parent heavily influence whether children are sent to work in artisanal and small-scale mining activities.

While poverty is often and commonly cited as a driving factor for child labour in artisanal and small-scale mining, Erola, Jalonen & Lehti (2016) argue that economic status alone does not always determine parental decisions regarding child labour and claim that even relatively affluent parents may opt to send their children to work if they perceive it to be in the family's best interest. In impoverished communities in Sierra Leone, families may view children's labour as a means of reciprocating for the expenses incurred in raising them, such as school fees and medical care (Maconachie & Hilson, 2016). Within this theoretical framework, children are seen as subject to parental control, with decisions regarding work, education, and other activities dictated by parents (Bhabha, 2017).

In Sierra Leonean society, paternal authority typically outweighs maternal influence, with fathers often making key decisions regarding child labour (Andre & Godin, 2014). The balance of power within the family unit significantly impacts the prevalence of child labour, as households where decision-making is shared between parents are more likely to mitigate child

labour compared to those where one parent holds sole authority (Andre & Godin, 2014). This dynamic underscores the importance of understanding intra-family dynamics and power structures in addressing child labour issues.

Furthermore, the distribution of authority over household finances plays a crucial role in shaping parental decisions regarding child labour. In households where one parent controls all spending, the desires and priorities of that parent may supersede concerns about child labour, even if both parents oppose it (Brown, Deardorff & Stern, 2002). This highlights the complex interplay between economic incentives, familial dynamics, and decision-making processes within households affected by child labour issues in Sierra Leone and draws insights from the parental charateristics theoretical framework.

2.2.3 New Sociology of Childhood Framework

Within the framework of the new sociology of childhood, childhood is understood as a socially constructed concept rather than a purely biological phase of development (Probine, 2022). This perspective sheds light on the agency of children in their participation in artisanal and small-scale mining activities. The definition of childhood is fluid and varies across cultures and historical contexts, as highlighted by James & Prout (2015), who argue that the perception of children's immaturity is shaped by cultural and societal norms. In Sierra Leonean culture, the concept of childhood is not bound by specific attributes or qualities but is shaped by social and historical factors (James & Prout, 2015).

Children's agency within the social world is emphasised by Wyness (2015), who argues that children are active participants in shaping their social environments. Agency is not solely about individual choice or autonomy but is influenced by complex social relationships and arrangements (Wyness, 2015). In certain cultural contexts, children may assume adult roles out

of necessity, such as caring for siblings or sick parents, thereby contributing to the family's social well-being (Covarrubias, Valle, Laiduc & Asmitia, 2019). For example, in Sierra Leone, a 13-year-old may take on adult responsibilities if the father has passed away, demonstrating how cultural expectations influence children's roles, while an adult of over 18 years may still be labelled as a child if the person is still living with the parents who are alive.

The analysis of the effects of artisanal and small-scale mining activities on women and children in Sierra Leone will draw on insights of the theoretical frameworks of gender, parental characteristics, and the new sociology of childhood. This interdisciplinary approach will provide a comprehensive and integrated understanding of the lived experiences of women and children within artisanal and small-scale mining communities.

2.2.4 Agency of Children - Extension of Three Prior Frameworks

The United Nations Convention on the Rights of the Child (UNCRC) defines a child as an individual below the age of 18, underscoring the notion of childhood as a period of dependency on parental or guardian care (Assembly, 1989). However, childhood is culturally constructed, varying in interpretation based on societal norms and contexts (Tobin, 2019). Within this framework, children are perceived to transition gradually into adulthood, acquiring skills and responsibilities commensurate with their developmental stages (Saracho, 2023). Work, thus, becomes intertwined with the process of child development, with children gradually assuming tasks that contribute to family sustenance and societal expectations (Elder & Johnson, 2018).

Children's involvement in artisanal and small-scale mining in West Africa, particularly Sierra Leone, is influenced by parental decisions driven by poverty and children's own sense of familial obligation (Kumar, Wata & Muthuraman, 2021; Faber, Krause & Sánches de la

Sierra, 2017). These dynamics align with parental characteristics and the new sociology of childhood theoretical frameworks, highlighting the interplay between familial structures and societal norms (Hutchby & Moran-Ellis, 2020). Despite international bodies' categorisation of children's involvement in artisanal and small-scale mining as hazardous labour of the worse form, scholars argue for a nuanced understanding of the contexts and circumstances, emphasising its role in supporting family livelihoods and enabling access to education (Maconachie & Hilson, 2016; Schwarts, Lee & Darrah, 2021).

Debates surrounding child labour in artisanal and small-scale mining intersect with cultural perceptions of work and parental responsibility (Adonteng-Kissi, 2018). While international organisations perceive children's engagement in artisanal and small-scale mining as exploitative, local contexts often view it as a means of socialization, training and economic contribution (Adonteng-Kissi, 2018). Tensions arise from differing definitions of child labour, with scholars advocating for a focus on abusive practices rather than mere participation in work activities (Lal & Bichu, 2016). This discourse underscores the need for a contextualised understanding of child labour within the artisanal and small-scale mining sector, acknowledging children's agency in contributing to family welfare amidst complex socio-economic realities.

2.3 Wealth-Poverty Dichotomy and Artisanal and Small-Scale Mining

Sierra Leone's paradoxical status as a mineral-rich yet impoverished nation underscores the complex interplay between wealth and poverty within the artisanal and small-scale mining sector (UNDP, 2020). This dichotomy manifests in stark socio-economic inequalities, perpetuated by disparities in resource distribution and access. Artisanal and small-scale mining emerges as a potential avenue for economic development in resource-endowed regions like

Sierra Leone, with the capacity to contribute significantly to gross domestic product[4] (GDP) (Hilson & Maconachie, 2020a). However, caution is warranted, as the "resource curse" phenomenon presents challenges such as corruption and political instability (Bah, 2016; Khadiagala, 2015), and consequently the mineral resources foment disputes and marginalisation instead.

In examining the well-being of artisanal and small-scale mining participants, a shift from a poverty-centric to an inequality-focused perspective reveals complex dynamics at play (Kangas & Ritakallio, 2019). Scholars advocate for a multi-dimensional assessment that considers health, education, and standard of living as critical indicators (House, 2021) of well-being. Inequality in artisanal and small-scale mining extends beyond income differentials to encompass broader disparities in resources and opportunities (Yang, 2017), influenced by gender division of labour, gender norms and gendered institutions. This perspective emphasises the role of societal structures and institutions in shaping individual well-being and access to resources (Aiyar & Ebeke, 2020).

Artisanal and small-scale mining landscapes in Sierra Leone are characterised by unequal access to opportunities, perpetuating power imbalances between different stakeholders (Conteh & Maconachie, 2021). Elites wield disproportionate power in resource control, while marginalised groups such as women and children struggle to assert their rights (Hwehwe & Thebe, 2021). The widening gap between rural and urban areas underscores the unequal

[4] Gross domestic product, GDP, is the total money value of goods and services produced in an economy in a given period, say a year. (Fix, Nitzan & Bichler, 2019)

distribution of benefits from artisanal and small-scale mining, with rural communities bearing the brunt of poverty and food insecurity (Statistics Sierra Leone, 2019). Power dynamics within artisanal and small-scale mining ecosystems reflect unequal relationships between various actors, necessitating reforms to address systemic inequalities (Conteh & Maconachie, 2021).

This state of affairs calls for policy interventions that prioritise equitable resource allocation and empowerment of marginalised groups, such as women and children, within artisanal and small-scale mining communities (Aiyar & Ebeke, 2019). By addressing the root causes of inequality and power imbalances, sustainable development goals can be achieved, fostering inclusive growth and poverty reduction. The empirical literature will now turn to look at different geographical perspectives on artisanal and small-scale mining.

2.4 Artisanal and Small-Scale Mining - Global Perspective

Artisanal and small-scale mining has been integral to human economic activities since the dawn of civilisation, providing essential materials for adornment, tools, and shelter (Spitz & Trudinger, 2019). Even as industrialisation transformed the mining landscape, artisanal and small-scale mining continued to play a significant role, particularly in many parts of the developing world.

The literature concurs that artisanal and small-scale mining serves as vital sources of employment, particularly in rural communities, contributing significantly to poverty reduction (Ofosu, Dittmann, Sarpong & Botchie, 2020; Omotehinse & Ogunlade, 2022; Schwarts, Lee & Darrah, 2021). Globally, an estimated 45 million people engage in artisanal and small-scale mining as a livelihood, with women comprising 30% and children over 1 million (Artisanal miners, 2023; De Haan, Dales & McQuilken, 2020; Perks & Schneck, 2021). Without artisanal

and small-scale miners, global consumers would lack access to many essential materials, as these miners are often at the forefront of global production networks (Artisanal miners, 2023).

Composing approximately 90% of the mining labour force worldwide, artisanal and small-scale miners indirectly support an additional 270 million people (Holley, Rodriguez, Redwood & Smith, 2022). They are crucial drivers of growth in artisanal and small-scale mining towns and communities as income earned from the mining activities is spent locally, unlike large-scale mining where the profits are mostly repatriated. Artisanal and small-scale mining extracts a significant fraction of metals such as tantalum, gold, tin, copper, tungsten, and iron on a global scale. These metals are essential components of products ranging from rechargeable batteries for electric vehicles to medical equipment (Balaram, 2022; Kelley, Huston & Peter, 2021). Furthermore, artisanal and small-scale miners contribute over 80% of the world's gemstone supply and are fundamental in producing minerals used in various industries (Schütte & Näher, 2020; Franks, 2020; Kolala & Dokowe, 2021).

Globally, artisanal and small-scale mining accounts for a significant portion of gold, sapphire, diamond, and tin extraction, essential for meeting consumer demand (Olivieri, 2019). The sector is intricately linked to the United Nations' Sustainable Development Goals, particularly those focused on poverty eradication, decent work, clean water, sustainable energy, climate action, industry and infrastructure, and peace and justice (Ayuk et al., 2020; Hilson & Maconachie, 2020b). In essence, artisanal and small-scale mining are indispensable components of global economies and are vital for achieving sustainable development goals worldwide.

2.5 Artisanal and Small-Scale Mining - Sub-Saharan African Perspective

Throughout the ages, artisanal and small-scale mining has been integral to the fabric of life in sub-Saharan Africa. Hilson, Hilson, Maconachie, McQuilken & Goumandakoye (2017) highlight that the region directly employs up to 20 million individuals in this sector, with another 100 million depending on it indirectly for their livelihoods. While providing essential support to numerous families, artisanal and small-scale mining operations in the region are predominantly informal and unlicensed (Hilson et al., 2017).

In the rural areas of 23 sub-Saharan African nations, artisanal and small-scale mining serves as a vital source of income, albeit often conducted informally, that is, unregulated and illegally. For instance, in Ghana, between 40% and 50% of small-scale miners are involved in unlawful activities (Olivieri, 2019). The environmental impact of artisanal and small-scale mining in these regions can be comparable to or even worse than that of large-scale mining operations due to inadequate regulation and governmental oversight. This includes the discharge of effluents into pristine ecosystems and mining in protected areas (Barenblitt et al., 2021; Eduful et al., 2020).

Furthermore, communities surrounding artisanal and small-scale mining sites often lack proper waste management facilities, leading to adverse effects on sanitation and public health. Significant environmental concerns associated with artisanal and small-scale mining in sub-Saharan Africa include biodiversity loss, deforestation, and land degradation (Baddianaah, Peprah & Adams, 2021; Donkoh et al., 2023; Ranto & Pratamad, 2018). Despite its economic significance, the environmental repercussions of artisanal and small-scale mining underscore the urgent need for sustainable practices and regulatory measures in the region.

2.6 Artisanal and Small-Scale Mining - West Africa

In West Africa, artisanal and small-scale mining epitomizes a labour-intensive, low-technology endeavor, often conducted informally, illegally, or with minimal regulation (d'Avignon, 2018). Zvarivadza (2018) further characterises it as the exploitation of marginal ore deposits, typically unprofitable for large-scale operations, using rudimentary tools through both informal and formal channels. While informal artisanal and small-scale mining is illegal, formal mining activities are conducted within the bounds of the law.

These descriptions paint a picture of individuals or groups utilising basic tools like pickaxes and shovels to extract mineral deposits in impoverished rural areas, often as a supplementary source of income alongside subsistence agriculture (Schwarts, Lee, Darrah, 2021) and other livelihood endeavours. The tradition of extractive activities, particularly artisanal and small-scale mining, has deep roots in West Africa, spanning centuries and serving as a crucial economic lifeline for millions of people in the sub-region (Brottem & Ba, 2019). Pijpers (2020a) highlights that indigenous populations were already engaged in gold mining in the Gold Coast before the arrival of colonial powers, with Europeans encountering native communities involved in alluvial gold mining upon their arrival in West Africa. Thus, the practice of artisanal and small-scale mining in West Africa dates back to time immemorial, deep-rooted in the collective memory of the region.

2.7 Artisanal and small-scale mining in Sierra Leone

As in other countries in West Africa, Sierra Leone started artisanal and small-scale mining centuries ago, but it started gaining widespread practice since 1930. The mining industry of Sierra Leone dates to the early twentieth century when the then British colonial

government established the geological survey and mines department (Akiwumi & D'Angelo, 2018).

Diamonds are said to have been found in the early 1930s and from 1934 to 1956, the Sierra Leone Selection Trust held monopoly rights to its mining, prospection and marketing in the whole country but in 1955 the Trust gave up its rights to alluvial deposits outside its lease area (D'Angelo, 2016) which then gave rise to artisanal and small-scale mining. Approximately 25% of Sierra Leone is covered in diamond fields, which span several thousand square kilometres in the southeast and east of the country. The Kono, Kenema, and Bo districts are the primary diamond producing areas (Maconachie & Hilson, 2018). Alluvial diamond concentrations occur in river channel gravels, flood-plain gravels, terrace gravels, and gravel residues in soils and swamps (Council, 2014). There are thousands of artisanal and small-scale diamond mining licenses in use in the Kono, Kenema, Bo, and Pujehun districts.

About 1% of the world's total production of the aluminum mineral bauxite comes from Sierra Leone (Kim et al., 2022). Deposits can be found at Krim-Kpaka in the Pujehun district of southern Sierra Leone, on the Freetown Peninsula, between Moyamba and Mano; at Kamakwie and Makumre in the north, along the Falaba to Waia road (Council, 2014) but bauxite is not one of the minerals exploited by artisanal and small-scale mining.

A "gold belt" stretches from the districts of Koinadugu and Tonkolili in the north, through Kono and Kenema in the east, and finally into the northern Bo district. Artisanal and small-scale mining operations utilising alluvial resources are currently the principal source of gold mining in Sierra Leone (Council, 2014), although new, contemporary mechanised mines are anticipated to start production in the coming years.

Like many parts of Sub-Saharan Africa, artisanal and small-scale mining is still largely informal. In Sierra Leone, artisanal and small-scale mining is mainly focused on diamonds and to a lesser extent, gold (SLEIPA, 2013), and offers employment and livelihood opportunities to millions of people directly or indirectly.

2.8 Evolution and Contribution of Artisanal and Small-Scale Mining

Artisanal and small-scale mining in West Africa has a rich historical legacy dating back to the pre-colonial era, where simple tools such as hammers, chisels, shovels, and pickaxes were used to mine gold and diamonds (Diets & Engels, 2018; Bryceson, 2018; Bansah, Dumakor-Dupey, & Sakyi-Addo, 2017). The Trans-Sahara trade route facilitated the extraction of and trade in minerals, including gold, silver, diamonds, and copper, between West Africa and the Mediterranean as early as the ninth and tenth centuries (Mlambo, 2018). Notably, the Gold Coast, present-day Ghana, earned its name from its abundant gold deposits, attracting European powers like the Portuguese, Spanish, English, and French, who vied for control over mineral trade in the region (Lansano, 2018).

Artisanal and small-scale mining plays a pivotal role in the economies of West African countries, engaging one of the largest workforces in the sector and providing livelihood options to millions of people (Lahiri-Dutt & McQuilken, 2019). It is estimated that up to 10 million people are directly involved in artisanal and small-scale mining activities, with an additional 60 million individuals earning a living from artisanal and small-scale mining activities-related value chain activities (World Bank, 2019). Artisanal and small-scale mining activities contribute significantly to poverty reduction, rural transformation, and employment creation, especially for youth, women, and men in mining communities (Ahenkan, Suleiman & Boon, 2020; McQuilken & Hilson, 2016).

With its readily available market and absence of unsold surpluses, artisanal and small-scale mining activities offer a more productive alternative to subsistence agriculture, serving as a primary source of livelihood in many communities (Bansah, Dumakor-Dupey, Kansake, Assan & Bekui, 2018). To maximise the socio-economic benefits of artisanal and small-scale mining activities, governments in West Africa are urged to revise legislation, provide mining-related training and education, facilitate technology transfer, and support artisanal and small-scale mining activities cooperatives in securing credit facilities (Haundi et al., 2021).

2.9 Categories of Workers in Artisanal and Small-Scale Mining

Artisanal and small-scale mining in West Africa is often perceived as a consequence of poverty, driven by the need for alternative sources of income due to the diminishing returns of subsistence agriculture (Hilson & Hu, 2022; Schwarts, Lee & Darrah, 2021). However, recent literature suggests a more nuanced understanding, revealing a heterogeneous composition of individuals involved in the sector (Osumanu, 2020; Hilson & Hu, 2022). While some are indeed motivated by poverty alleviation, others are attracted by the promise of quick wealth (Schwarts, Lee & Darrah, 2021). Additionally, there are seasonal miners and permanent miners, each group embodying distinct motivations and aspirations (Hilson & Hu, 2022). The prevailing narrative of poverty-driven involvement in artisanal and small-scale mining activities is evolving, acknowledging the multifaceted nature of motivations driving individuals into the artisanal and small-scale mining sector.

Within artisanal and small-scale mining operations in West Africa, a three-tiered organisational hierarchy typically exists, comprising miners, pit managers, and license owners (Bryceson & Jønsson, 2013). License owners, despite wielding significant power and influence, often delegate operational responsibilities to local pit managers (Bryceson &

Geenen, 2016). Pit managers oversee the day-to-day operational tasks necessary for transforming a mining claim into a profitable venture, including the hiring of labourers and procurement of equipment. At the grassroots level, self-employed labourers, known as diggers, perform manual digging tasks, while processing workers such as women and chidren, including crushers, are responsible for ore processing activities (Bryceson & Geenen, 2016). This hierarchical structure delineates the roles and responsibilities within artisanal and small-scale mining activities operations, with each tier contributing to the overall functioning of the mining enterprise. It should be emphasised that there are few women, if any, occupying the role of financier of site manager or even digger and often occupy ancillary roles doing routine tasks such as crushing, panning and carrying as highlighted by Siwale (2018b).

Despite the end of Sierra Leone's civil war over two decades ago, a disturbing reality persists: the exploitation of women and children in dangerous open-pit gold and diamond mines (Bolotta & Devine, 2022). Hundreds of women and children are subjected to difficult labour conditions daily, a grave violation of Sierra Leone's laws and international agreements aimed at safeguarding children's rights (Sam, 2024). The government's failure to effectively enforce laws reforming the difficult working conditions of children in artisanal and small-scale mining perpetuates this cycle of exploitation, jeopardising children's well-being, education, and future prospects. Immediate action is imperative to halt the widespread, unprotected and unregulated use of child labour in the mines, addressing not only the immediate harm to children but also the broader social and economic repercussions threatening future stability (Bolotta & Devine, 2022; Sam, 2024).

2.10 Challenges of Artisanal and Small-scale Mining

Artisanal and small-scale mining in West Africa, characterised by rudimentary technology, often results in significant soil and ecosystem displacement, primarily due to the need for extensive surface digging to access minerals (Ahirwal & Pandey, 2021). This indiscriminate mining method encroaches into farmlands and pollutes domestic water sources with chemicals like mercury, posing serious environmental and health risks to communities (Ofosu, Dittmann, Sarpong & Botchie, 2020).

Regulatory frameworks governing artisanal and small-scale mining operations in West Africa are often weak, with local and central governments lacking the capacity to enforce them effectively (Hilson, 2016b) or lacking clearly defined roles and responsibilities for supervision and enforcement, and often confused regarding whether to use incentive-based or coercive-based approaches in the enforcement of compliance to laws in the sector. Contradictory communications from different ministries further complicate regulatory compliance, leaving communities vulnerable to the negative social and environmental impacts of artisanal and small-scale mining activities (Ofosu, Dittmann, Sarpong & Botchie, 2020).

Artisanal and small-scale mining activities perpetuate socio-economic inequalities in West Africa, with limited education and training among miners contributing to suboptimal practices and environmental degradation (Haundi, Tsokonombwe, Ghambi, Mkandawire & Kasambara, 2021). The exploitation of unskilled labour exposes individuals, particularly women and children, to hard working conditions that affect the retention of children in school and discriminates against women, exacerbating social disparities (UNICEF, 2020).

Artisanal and small-scale miners in West Africa face challenges in accessing finance and adopting new technologies due to the sector's informal and unregulated nature (Hilson,

2020a). Limited capital inhibits investments in safer and more efficient mining practices, hindering the sector's potential for sustainable development (Schoneveld et al., 2017) and the lack of appropriate technology results in the sector continuing to depend on labour-intensive and manual processes that compromise efficiency and exacerbates negative environmental and social effects (Gumede, 2018).

Gender disparities persist in artisanal and small-scale mining activities in West Africa, with women and children's participation often marginalised and ignored in its contribution to the sector (Buss et al., 2017). Structural inequalities in access to resources and social institutions perpetuate gender-based discrimination and limit women's economic and social empowerment within the sector.

These challenges underscore the need for comprehensive interventions and policy reforms to address the environmental, social, and economic impacts of artisanal and small-scale mining in West Africa to ensure sustainable and equitable development for affected communities.

2.11 Stakeholders and Participants in Artisanal and Small-Scale Mining

2.11.1 Landowners and Miners

In the realm of artisanal and small-scale mining in Sierra Leone, a complex web of actors converges to engage in various activities. While landowners such as chiefs may lack the expertise for mining, they wield significant power, leasing mining land to financiers and retaining control over generated income, often to the detriment of mine workers, particularly vulnerable groups like women, youth, and children. These dynamics perpetuate socio-economic disparities, as highlighted by Wilson (2019) and Verbrugge & Besmanos (2016).

Despite women's indispensable roles in artisanal and small-scale mining tasks, their exclusion from land ownership and entrenched social structures hinder their ability to reap the benefits fully, as Ibrahim, Rutherford & Buss (2020) elucidate. Although women may contribute substantially to family income through artisanal and small-scale mining, their overall economic empowerment remains limited. Omotehinse & Ogunlade (2022) underscore how women's earnings from mining bolster rural economies, yet their access to resources and opportunities remains constrained.

This marginalisation is rooted in cultural norms mediated by gendered institutions such as the family and chiefs that deny women land ownership, perpetuating unequal power dynamics between landowners and miners. Financial agreements heavily favour landowners, leaving miners with meager earnings, exacerbated by the informal nature of mining operations, complex labour arrangements and laxed labour regulations, as noted by Hos & Upe (2020) and Verbrugge & Buxton (2014).

2.11.2 Capital Owners and Miners

Artisanal and small-scale mining in Sierra Leone exhibits a stark division between those with financial resources and tools and those who labour for them, as Verbrugge (2015) highlights. This informal arrangement, typical of such operations, leads to numerous social and economic challenges, including delayed or underpayments to miners and conflicts between capital owners and labourers, as observed by Verbrugge & Buxton (2014).

The imbalance of power and resources heavily favours capital owners, who often monopolise licenses and control over mining activities, leaving miners vulnerable and defenseless, as Ankenbrand, Welter & Engwicht (2021) emphasise. Lahiri-Dutt (2018) sheds light on the harsh realities faced by miners, who, despite being mistreated and underpaid, often

lack other viable livelihood alternatives to move into due to failed rural activities like agriculture.

Eniowo, Kilambo & Meyer (2022) further underscore how indebtedness to capital owners entraps miners in a cycle of poverty, preventing them from seeking alternative employment opportunities until all the debts are made good. Addressing these disparities and complexities go beyond formalisation; it requires a nuanced understanding of the intricate socio-economic dynamics and complex labour arrangements at play, as noted by Hos & Upe (2020).

2.11.3 Workers - Men, Women and Children

The gendered disparities within artisanal and small-scale mining operations in Sierra Leone persist, perpetuating systemic inequalities and reinforcing gender-based exploitation and exclusion. Women and children bear the brunt of these inequalities, facing significant barriers to participation and benefitting less from their participation in artisanal and small-scale mining activities compared to men, as highlighted by Buss et al. (2019). Gender discrimination in licensing processes further marginalises women, compounding their vulnerability within artisanal and small-scale mining operations, as noted by Rutherford & Buss (2019).

These entrenched gender norms and power dynamics not only relegate women to subordinate roles but also limit their access to resources, opportunities and decision-making authority within artisanal and small-scale mining operations, as Danielsen & Hinton (2020) argue. As a result, women are disproportionately impacted by the hash conditions prevalent in artisanal and small-scale mining, often resorting to sending their children into artisanal and small-scale mining tasks to supplement household income, as highlighted by Ibrahim, Rutherford & Buss (2020).

The pervasive gender discrimination and social inequalities perpetuated within artisanal and small-scale mining not only undermine women's rights but also perpetuate intergenerational cycles of poverty and exploitation. Urgent action is needed to empower women and children in artisanal and small-scale mining communities to access their rights, participate fully in decision-making processes, and benefit equitably from mining activities.

Government efforts to formalise or regulate artisanal and small-scale mining operations in Sierra Leone, aimed at revenue mobilisation and sector development, often overlook the complexities of labour arrangements and fail to address the plight of informal workers, as Verbrugge & Besmanos (2016) argue. Neglecting the concerns of the labour force risks contributing to further exploitation and hazardous working conditions for the mine workers, as observed by Moyo et al. (2022). Moreover, corruption in natural resource management widens the gap between artisanal and small-scale mining workers and government officials, diverting funds intended for community development, as highlighted by Ankenbrand, Welter & Engwicht (2021).

The distribution of financial benefits from artisanal and small-scale mining activities disproportionately favours those with power, skills, and capital, while marginalised labourers, including women and children, receive minimal recognition and compensation, as noted by Hilson, Hilson & Maconachie (2018) and Eniowo, Kilambo & Meyer (2022). This research therefore aims to explore the lived experiences of artisanal and small-scale mineworkers, particularly women, men labourers, and children, to understand the challenges they face, power dynamics with stakeholders, and factors motivating their continued engagement in artisanal and small-scale mining activities despite the odds stacked against them.

2.12 Women and Artisanal and Small-Scale Mining

In artisanal and small-scale mining in Sierra Leone, women play a unique role. Women have steadily focused on gold, whereas men have historically dominated the diamond business in the hopes of being wealthy one day. This is because mining for gold yields more consistent profits than mining for diamonds. For women to fulfill the role of traditional family caregivers, this is a crucial role. The majority of women who participate in artisanl and small-scale gold mining are single mothers whose husbands or men have abandoned them or have passed away. The majority of their domestic duties are carried out by them, and many of them work in mining and agriculture.

Women labour at highly productive gold mines, accounting for up to 15% of the workforce and concentrating on panning, according to the National Action Plan for Reducing Mercury Use in the Artisanal and Small-scale Gold Mining (ASGM) Sector in Sierra Leone (Republic of Sierra Leone, 2020), which is the last stage of ore concentration. It can be assumed that women constitute up to about half (47%) of the artisanal and small-scale gold mining population in Sierra Leone due to the fact that women almost solely perform the widespread gold panning that is found in innumerable rivers and streams (Republic of Sierra Leone, 2020). In the artisanal and small-scale gold mining sector of Sierra Leone, the majority of women work alone, panning in rivers, and occasionally in groups, washing and panning the ore.

2.13 Benefits for Women in Artisanal and Small-Scale Mining

Women participating in artisanal and small-scale mining activities in West Africa have found avenues for earning valuable income to support themselves and their families, thus contributing to meeting essential needs such as healthcare and education (Buss et al., 2017). This economic empowerment through artisanal and small-scale mining has elevated the status

of women within their communities, providing them with newfound agency and recognition (Hilson, 2016a). In regions like Sierra Leone, where artisanal and small-scale mining dovetails with subsistence agriculture, women's involvement improves household food security throughout the year (Hilson, Hilson, Siwale & Maconachie, 2018). The complementary nature of non-farm income from artisanal and small-scale mining offers rural women an alternative pathway to poverty alleviation (Arthur-Holmes & Busia, 2022) and a little wealth accumulation for other purposes as observed by Hilson, Hilson, Siwale & Maconachie (2018)).

Despite historical gender disparities, women are increasingly asserting themselves in artisanal and small-scale mining, with some assuming leadership roles and ownership of mining operations (Hilson, Siwale & Maconachie, 2018). In countries like the Democratic Republic of the Congo, women have formed cooperatives to collectively hold mining licenses and concessions, challenging traditional male dominance in the sector (Byemba, 2020). While this shift may provoke resistance from male counterparts, the mobilisation of women in artisanal and small-scale mining is yielding tangible benefits for their families (Buss & Rutherford, 2020).

The efforts to address the "visibility crises" surrounding women's contributions to artisanal and small-scale mining are gaining momentum, with women's movements advocating for their inclusion in policy discussions (Buss & Rutherford, 2022). National-level planning now acknowledges the importance of and includes gender equity in mining policies, signaling a significant step toward addressing gender inequalities within the sector (Ambe-Uva, 2017). This inclusion reflects a growing recognition of the multifaceted role women play in artisanal and small-scale mining and the need for gender-sensitive policy interventions.

While gender inequalities persist in artisanal and small-scale mining, it is essential to acknowledge the nuanced benefits women derive from their participation in the sector (Hilson, Hilson, Siwale & Maconachie, 2018). By recognising the complex interplay between gender, power, and mining, stakeholders and policymakers can better understand and address the diverse livelihood opportunities available to women in artisanal and small-scale mining (Buss & Rutherford, 2020).

The transition from subsistence agriculture to artisanal and small-scale mining reflects a changing economic landscape in West Africa, where artisanal and small-scale mining serves as a complementary livelihood option for rural communities (Fisher et al., 2019). Women's dual roles in supporting household livelihoods and engaging in artisanal and small-scale mining activities underscore the importance of further research to explore the lived experiences of women and their families in artisanal and small-scale mining (Ofosu, Dittmann, Sarpong & Botchie, 2020). Such studies are crucial for informing targeted interventions to address underlying challenges and maximise the benefits of artisanal and small-scale mining for women and their communities, which this research aims to to do.

2.14 Challenges for Women in Artisanal and Small-Scale Mining

Women in artisanal and small-scale mining often face a number of challenges including discriminatory practices that limit their participation in lucrative activities, such as the "dig and wash" process, which yields higher income but entails physical strain (Arthur-Holmes, 2021). In addition, male-dominated decision-making processes dictate women's roles, perpetuating gender inequalities within artisanal and small-scale mining communities (Hilson, Hilson, Siwale & Maconachie, 2018).

Furthermore, the transient nature of artisanal and small-scale mining activities exposes women and young girls to exploitation, including transactional sex and sex trafficking, driven by financial incentives (Hayes & Perks, 2012) and the allure of quick cash from male miners leads to instances of gender-based violence and harassment (Danielsen & Hinton, 2020).

Moreover, women face significant disparities in income earned compared to their male counterparts in artisanal and small-scale mining, often earning lower wages for the same work (Weldegiorgis, Lawson & Verbrugge, 2018) and financial benefits are skewed towards men due to entrenched gender biases in decision-making and resource allocation (Hinton, Hinton & Veiga, 2017).

The COVID-19 pandemic has exacerbated the vulnerability of women in artisanal and small-scale mining, leading to loss of income and heightened health risks (Thierens & Mawala, 2020) while the inadequate attention to women's health and well-being in artisanal and small-scale mining contexts exacerbates the spread of infectious diseases, further compromising their livelihoods (Cossa et al., 2021).

Also, governments' interventions in artisanal and small-scale mining often overlook the specific needs and challenges faced by women, perpetuating gender-based discrimination (Dinye & Erdiaw-Kwasie, 2022). In addition, women's contributions to artisanal and small-scale mining are undervalued and marginalised, with limited recognition in policy frameworks (Arthur-Holmes, Busia & Kats-Lavigne, 2023).

Despite their significant roles, women's participation in artisanal and small-scale mining is often overlooked in research and academic discourse, leading to a knowledge gap regarding the extent of their involvement (Dinye & Erdiaw-Kwasie, 2022). Until lately,

assumptions of artisanal and small-scale mining as a male-dominated sector further contribute to the underestimation of women's contributions (Arthur-Holmes & Busia, 2021).

Women in artisanal and small-scale mining face barriers to accessing resources and opportunities due to entrenched social norms, gendered institutions and structural inequalities (Rutherford & Buss, 2019) and leadership positions and decision-making roles are predominantly held by men, limiting women's agency and influence within artisanal and small-scale mining communities (Velásques-Lópes et al., 2020).

The ‘triple burden’ of women who do unpaid family labour in child care and care for the sick and elderly, unpaid family work under various ‘conjugal contract’ arrangements, among other family responsibilities, restricts the time available for any paid work. With such a work burden experienced by most women in the rural settings, it limits their professional development and hence ability to take up full-time gainful jobs, including activities in artisanal and small-scale mining.

The issues to deal with as part of the challenges facing women are not just about what distinguishes male and female roles in artisanal and small-scale mining, but also what distinguishes female artisanal and small-scale miners at different points of the mining continuum (Buss, Rutherford, Sebina-Zziwa, Kibombo & Kisekka, 2017)

Institutions and conventions influence women's modes of behaviour and economic pathways, each with their own set of obstacles (Adam, Adams, Gerber & Amacker, 2022). This includes the means of production (land and tools utilized, and who has access to or control over them), the division of labour (who does what chores), the usage of credit, and the forms of compensation.

These institutions create, maintain, alter, and occasionally even challenge gendered norms. A major factor in influencing women's economic chances in artisanal and small-scale mining economies is authority relationships (Buss, Rutherford, Sebina-Zziwa, Kibombo & Kisekka, 2017), which affect men's and women's forms of agency and determine the strategies used. Mine committees, leaders, license holders, local political and customary authorities, and other formal and informal institutions functioning within mine zones are examples of gendered "meaning systems," which are the discourses, terms, and metaphors that organise the ways in which artisanal and small-scale mining and its activities, as well as the women and men whose lives are affected by them, are made known.

For instance, in Sierra Leone, obtaining permission from the local Chiefdom Mining Allocation Committee in the form of a documented agreement to utilise the land for mining is a prerequisite for applying for an artisanal and small-scale mining license (Maconachie & Conteh, 2021). Conteh & Maconachie (2021) note that following this, those wishing to apply for an artisanal and small-scale mining license can do so at the National Mineral Agency's regional and district offices, while those wishing to apply for a small-scale mining license can do so only at the Mining Cadastre Office in Freetown. In addition, the Environmental Protection Agency issues licenses for environmental impact assessments (EIAs) at a cost determined by a fee log-scale that takes into account several factors related to mining methods and the surrounding environment (Kamara, 2020b). These cumbersome processes, procedures and fees effectively disadvantage women in rural areas as they do not have the resources to go through them.

In the artisanal and small-scale gold mining sector, women encounter problems unique to their gender. They have a harder time getting into male-dominated gold mining groups unless

their spouse, a close acquaintance, or a family is already a member and because women are disproportionately excluded from gold mining groups, investing in women's gold business is less profitable for gold buyers due to the lower production of these businesses. As a result, women rarely have set buyers and frequently offer their goods at reduced costs to anyone who is interested.

Despite these difficulties, a lot of women continue to choose to work in artisanal and small-scale mining because they think it is a direct, economically viable option compared to other options. While some women follow this livelihood with the intention of eventually earning enough wealth to pursue other activities, including starting a small business, the majority of them do so with the goal of staying in the sector for the long run and combining it with agriculture and other activities.

Addressing these multifaceted challenges requires targeted interventions that prioritise gender equity that empower women to participate fully in artisanal and small-scale mining while ensuring that their health, safety, and economic well-being are not compromised.

2.15 Protection or Discrimination Under the Current Practice?

In various instances across West Africa, concerns for women's safety and security in artisanal and small-scale mining activities have been used as justifications to limit their participation in potentially lucrative endeavors (Buss & Rutherford, 2020). Under the guise of safeguarding women, restrictions are imposed, barring them from entering underground pits or engaging in activities with better income returns (Yankson & Gough, 2019). Similar scenarios unfold globally, where women are forbidden from accessing artisanal and small-scale mining reserves or initiating mining activities independently, perpetuating gendered norms and practices that curtail their empowerment (Hinton, Veiga & Beinhoff, 2003; Moreno-Brush,

McLagan & Biester, 2020; Ibrahim, Rutherford & Buss, 2020). Sometimes language is used to disguise such discrimination as protection. It is not uncommon to hear things such as ‘women of dignity do not engage in mining’ or ‘digging is too hard for women’ or ‘a women’s place is at home’, ‘for women's safety’, ‘because they are afraid of being sexually assaulted’, ‘because women are not brave’, and so on and others. This language and expressions are used by different actors to justify the division of labour and these also transmit norms about men's and women's behaviour, responsibilities, occupations, and bodies, as well as how these norms help structure artisanal and small-scale mining activities.

Despite purported concerns for their safety, these restrictions ultimately reinforce discriminatory practices, relegating women to the lowest ranks of the artisanal and small-scale mining hierarchy (Eniowo, Kilambo & Meyer, 2022). Socio-cultural taboos and superstitions further constrain women's participation, with beliefs surrounding menstruation and its perceived impact on mineral extraction limiting their involvement in lucrative activities (Blair et al., 2017; Hinton, Hinton & Veiga, 2017; Mugo, Ondieki-Mwaura & Omolo, 2020). Consequently, women are compelled to work longer hours for inadequate income, perpetuating gendered divisions of labour and entrenching structural inequalities within the artisanal and small-scale mining sector (Arthur-Holmes, 2021; Sinclair, 2021).

2.16 Children and Artisanal and Small-Scale Mining

2.16.1 Current Context

The lack of a universally agreed upon definition of child labour presents significant obstacles in gauging the prevalence and seriousness of child exploitation across various locations, time priods and sectors, including artisanal and small-scale mining (Radfar, Asgharsadeh, Quesada & Filip, 2018). This ambiguity complicates comparisons between

sectors and nations, impeding effective measures to combat child labour (O'Driscoll, 2017). Despite efforts by UNICEF and the International Labour Organisation (ILO) to define child labour with emphasis on its adverse effects on physical and mental development (Unicef, 2020; Jha & Malviya, 2020), disagreements persist, particularly concerning which tasks are hazardous for children, notably within artisanal and small-scale mining settings (ILO, 1999; Potter & Lupilya, 2016).

Scholars such as André & Godin (2013) and Maconachie & Hilson (2016) argue that the predominant focus on hazardous work fails to capture the nuanced realities of children's involvement in artisanal and small-scale mining, particularly in regions like Sierra Leone, Ghana, and Liberia. They contend that children's roles in artisanal and small-scale mining often resemble those in subsistence agriculture, such as carrying produce, hence contesting the international classification of artisanal and small-scale mining-related tasks as inherently hazardous for children. This oversimplification overlooks the socio-economic complexities driving child labour in these areas. Thus, the dichotomy between perceived negative consequences and potential benefits of child labour in artisanal and small-scale mining warrants further examination (Maconachie & Hilson, 2016).

Familial reciprocity is a common survival practice in many West African communities, facilitated by children's contributions to family livelihoods through activities like artisanal and small-scale mining (Dreby & Carr, 2019; Elliot et al., 2018; Maconachie & Hilson, 2016). Participation in artisanal and small-scale mining equips children with valuable survival and coping skills, essential for navigating challenging circumstances for the future. However, applying international standards without considering local contexts risks undermining these coping mechanisms, as argued by Jonah & Abebe (2019), Maconachie & Hilson (2016) and

O'Driscoll (2017). In Sierra Leone, as highlighted by Maconachie & Hilson (2016), income from children's participation in small-scale gold and diamond extraction in the Kono district serves as vital support for their families and sometimes represents the only means to sustain their education.

To buttress the importance of children's contribution to the livelihoods of their families, during a field visit to gather information towards the development of a national plan of action on artisanal and small-scale mining in Sierra Leone (Sierra Leone, 2020), the team observed that:

> For example, in Masumbiri community, two children between the ages of 6-10 years were observed filling a pan with gravel together on the surface of a mine site. When asked why they were doing this, the children shared that they do this out of school hours to make some cash to be able to pay for their school's lunches, and to earn additional cash for helping their parents to pay their school fees. p.28.

Owusu, Afrifa & Obeng (2022) elaborate some of the factors driving children into artisanal and small-scale mining, as in appendix I, which include lack of parental care or control, poverty and the need for alternative income sources to support their families and themselves.

Sierra Leone is a party to the "United Nations Convention on the Rights of the Child" and is concerned about the issue of child labour as demonstrated by several laws to protect the best interest of the child. Like elsewhere in Africa, children in Sierra Leone are essential to the household's survival with regard to food security and financially. The United States Department of Labour (2016) documented that in Sierra Leone, 67% of children between 5 and 14 years attend school, 43% combine work with attending school while 51.3% of these ages

work. Children in Sierra Leone appear to play a little part in the tasks reserved for adults in artisanal and small-scale mining, nonetheless.

Consultants developing the National Action Plan for Reducing Mercury Use in the Artisanal and Small-scale Gold Mining Sector in Sierra Leone (Sierra Leone, 2020) found out in a field research that when children were found to be present in artisanal and small-scale mining sites, they were mostly selling food to artisanal miners and going with their mothers to work at most of the sites visited. They further noted that only in a few mine sites where children were observed participating in artisanal and small-scale mining activities and in these situations, they were primarily assisting their parents with tasks like panning concentrate, washing ore and carrying water. Unlike the circumstances in other countries in the region, it is documented that no children in Sierra Leone are involved in deep mining pits or hard rock sites, and none are seen helping to treat mercury (Sierra Leone, 2020).

Despite the government's implementation of a free quality education policy, parents still incur various expenses, such as user fees and transportation costs, due to underfunding to implement the flagship programme. This challenges the notion of "free education" and underscores the intricate financial dynamics shaping children's involvement in artisanal and small-scale mining to be able to stay in school.

The complexities of child labour in artisanal and small-scale mining demand a nuanced and context-specific approach. Understanding the socio-economic drivers and benefits, such as supporting families and enabling education, is crucial for devising effective policies and interventions. Simply applying international standards without local consideration risks overlooking the intricate realities and potentially harming the very communities these measures aim to protect.

2.16.2 Negative Influence of Artisanal and Small-Scale Mining on Children

Children engaged in artisanal and small-scale mining confront a myriad of challenges, undermining their well-being and hindering their development. One such challenge arises when children are coerced by parents or compelled by circumstances to undertake hazardous tasks classified as the worst forms of child labour, such as extracting gold with mercury (O'Driscoll, 2017). This exposure to toxic substances not only jeopardises their health but also contaminates water sources and soil, posing long-term risks to the community's health (Bento, 2016; Morna, 2013). Moreover, children working underground face grave dangers, including exposure to harmful fumes, accidents from equipment mishandling, and the constant threat of tunnel collapse (Human Rights Watch, 2015). The preference for children in underground tasks due to their smaller size exacerbates these risks, leaving them vulnerable to life-threatening situations (Kumar, Wata & Muthuraman, 2021).

Another significant challenge arises from the acquisition of detrimental habits by children exposed to the harsh realities of artisanal and small-scale mining environments. Peer pressure and influence from adults often lead children into patterns of alcoholism, substance abuse, and involvement in illicit activities such as theft and prostitution (Ajith, Ghosh & Janss, 2020). In Sierra Leone, substance abuse includes children's use of the deadly 'kush[5]' substance. Such behaviours not only pose immediate health risks but also impede their cognitive and

[5] Kush is an artificial compound and said to include cannabis, fentanyl, and tramadol, among other psychoactive elements which is consumed by some youth in Sierra Leone and is becoming a public health issue of concern (Bangura et al., 2024)

social development, hindering their transition into responsible and productive adulthood (Kumar, Wata & Muthuraman, 2021).

Moreover, despite assertions that artisanal and small-scale mining enables children to contribute to their education costs, evidence suggests that in some situations it often exacerbates school dropout rates (Bansah, Dumakor-Dupey, Kansake, Assan & Bekui, 2018), due to difficulties arising from their participation in artisanal and small-scale mining activities such as injuries, sickness and fatigue. Inadequate educational facilities coupled with economic pressures force children out of school, limiting their future prospects and perpetuating cycles of intergenerational poverty (Getaneh & Shikur, 2021). Furthermore, children participating in artisanal and small-scale mining are vulnerable to sexual exploitation, trafficking, and abuse, risking their physical and psychological well-being (O'Driscoll, 2017; Schwarts, Lee & Darrah, 2021). The absence of basic health and sanitary facilities at the sites of artisanal and small-scale mining exacerbates these challenges, leaving children susceptible to diseases and denying them their fundamental rights to education and healthcare (Abdurashidovich, 2020; Zvarivadza & Nhleko, 2018).

Additionally, children, especially girls, are exposed to sexual and gender-based violence. Fayiah & Fayiah (2024) note that one of the social problems associated with artisanal and small-scale mining activities is early marriages and teenage pregnancies as a societal concern. However, the majority of these young marriages and adolescent pregnancies are linked to either destitution or sexual offenses like rape among others. In mining settlements, the inflow of young migrant men seeking better opportunities exposes these places to a wide range of criminals and human rights abusers. Arthur-Holmes, Yeboah, & Busia (2023)

established that the men involved in the artisanal and small-scale mining activities either coerce or physically abuse the vulnerable young girls they prey on.

The complex interplay of poverty, inadequate infrastructure, and cultural norms underscores the urgent need to explore children's lived experiences in artisanal and small-scale mining. Understanding whether their involvement constitutes exploitative labour or serves as a means of survival is essential for designing effective interventions and safeguarding their rights. Addressing these challenges demands a holistic approach that prioritises child agency and well-being within the artisanal and small-scale mining sector in Sierra Leone.

2.17 Smallholder Agriculture and Artisanal and Small-Scale Mining-Complementarity or Competition?

The extant literature stipulates the symbiotic connection between artisanal and small-scale mining and subsistence agriculture in many rural communities in Sub-Saharan Africa, including Sierra Leone. Some of the literature see artisanal and small-scale mining activities as competing with peasant agricultural activities for land, financial resources, labour and time, and maintains that artisanal and small-scale mining negatively affects peasant agricultural production and productivity, while others see both as being complements rather than substitutes, with artisanal and small-scale mining reinforcing agriculture to improve livelihoods of rural communities.

Creating jobs and promoting inclusive growth are top priorities for development and the remarkable rise of artisanal and small-scale mining in Sub-Saharan Africa has led some policymakers to view artisanal and small-scale mining as a means of reducing poverty and creating long-term jobs in rural areas. However, Brown (2020) asserts that on the other hand, there is unmistakable evidence that artisanal and small-scale mining is seriously harming livelihoods, the environment, and food security. This has made it necessary to reconsider how

artisanal and small-scale mining and smallholder agriculture, which continues to be the foundation of many Sub-Saharan Africa economies, can coexist.

It is evident how important the two subsectors are. For example, about 1.1 million persons in Ghana (with 4.5 million dependents), 300,000 in Sierra Leone (with 1.8 million dependents), and 200,000 in Burkina Faso (with 1 million dependents) are involved in artisanal and small-scale mining (ACET, 2017), according to research done in 2017 by the African Centre for Economic Transformation (ACET). Furthermore, artisanal and small-scale mining ranks second in terms of employment in resource-rich rural communities, after smallholder agriculture. Accroding to ACET (2017), artisanal and small-scale mining provides around one-third of Ghana's total gold production. In 2014, 36% and 64% of Sierra Leone's mineral exports, diamonds and kimberlite respectively, came from artisanal and small-scale mining. Within eight years, gold production in Burkina Faso doubled, making it the country's second-largest export behind cotton.

In examining the impact of artisanal and small-scale mining on agriculture in northwestern Tanzania, Poignant (2023) found out that small-scale mining has a significant economic impact on the regional agricultural economies from which it originates. The findings imply that when small-scale gold mining sites appear nearby, farm households generally reduce their agricultural activities and invest less in farming which suggests that there is a competing relationship between the two sectors meaning that through intra-household spillovers, the growth of non-farm employment options also supports agricultural development. However, the findings imply that there is more antagonism in the connection between agriculture and mining, at least when it comes to artisanal and small-scale mining. Poignant (2023) noted that a household exposed to mining produces less agricultural output and uses fewer inputs and there

were no indications that artisanal and small-scale mining investments have benefited smallholder agriculture. The results, instead, indicate that farmers abandon agriculture as alternative livelihoods become more favourable.

Ofosu, Dittmann, Sarpong & Botchie (2020) claim that the rapid expansion of extractive industries like artisanal and small-scale mining can cause ‘Dutch disease’, which is characterised by a labour transfer from the agriculture sector to the artisanal and small-scale mining sector. However, research suggests that the anticipated reciprocal relationship has not held up over time (Ofosu-Mensah, 2017) and that the artisanal and small-scale mining has taken a significant share of farm labour away from the agriculture industry.

Artisanal and small-scale mining, as disagreed by ACET (2017), is an improbable instrument for reducing rural poverty, for two important reasons. First, as gold and diamonds are non-renewable resources, artisanal and small-scale mining is an unsustainable medium- to long-term source of revenue for local people. Furthermore, even in cases where regulation is in place, artisanal and small-scale mining operators will relocate every few years when their supply of minerals runs out in one area. This helps to explain why smallholder agriculture and poorly regulated artisanal and small-scale mining seem incompatible because of the latter's significant and detrimental social and environmental impact.

Artisanal and small-scale mining reduces food production by taking up farmlands, uprooting farmers, endangering food security (Abbiw, 2020; Tsebe, 2018), and turning local populations into ghost towns with abandoned mining sites that serve as mosquito breeding grounds. Additionally, they have large concentrations of residual, extremely dangerous substances (such as cyanide and mercury) that pose serious health risks to the nearby communities (Esdaile, & Chalker, 2018; Gyamfi et al., 2021). Streams are diverted into mine

sites, where they contaminate the water that flows and can even reduce the groundwater level, causing streams to dry up. Arable ground is thus no longer suitable for farming in communities where artisanal and small-scale mining takes place.

A further challenge to agriculture is presented by artisanal and small-scale mining as mined areas may make formerly fertile ground unfit for farming. Adranyi, Stringer & Altink (2024) complain that mined regions cannot be brought back to a suitable state for continuous productive agricultural use unless comprehensive reclamation is implemented, which guarantees physical stability, waste management, and acceptable land uses. Ofosu, Dittmann, Sarpong & Botchie (2020)) further claim that farm families' primary motivation to venture into artisanal and small-scale mining is the dwindling profits from agriculture and some people only join artisanal and small-scale mining because they think it will help them reach their goals and earn more money. Additionally, since artisanal and small-scale mining has long been considered as an annoyance and a sector dominated by rogue entrepreneurs, it is not thought to be especially necessary for plans or strategies aimed at reducing poverty and promoting regional economic growth.

When smallholder farming is adversely affected by artisanal and small-scale mining, it has implications for women and children, given the gender and generation roles played at the household and community levels. Women and children play a significant contribution in household food security and as vulnerable groups their plight when smallholder agriculture is affected may become worse if they are from marginalised households and this could make them more vulnerable since it limits their ability to diversify their sources of income in the event of shocks and disruptions from the outside world as well as from inside. For example, Adranyi, Stringer & Altink (2023) concede that female-headed households that lose their farms and turn

to artisanal and small-scale mining may not be allowed unrestricted access to mine sites because of gendered norms and cultural practices limiting women's participation in many artisanal and small-scale mining activities and also because supervisors constantly monitor accessibility, and these will have an impact on their ability to make a living. Restrictions on the use of assets like land, loans, equipment, and networks make it more difficult for most women and children to move around in the sector which could imply that these households are more likely to be impoverished.

Moreover, when smallholder farming is negatively impacted by artisanal and small-scale mining, women and children, who already have limited livelihood options in rural communities, may be compelled to join the artisanal and small-scale mining labourforce. As has been noted, they suffer discrimination and abuses, are marginalised due to traditional beliefs, cultural practices and gendered institutions, and therefore cannot compete on an equal basis as their men counterparts. This situation will further impoverish and alienate them.

In the rural areas of the Republic of Guinea, next to Sierra Leone in West Africa, Huntington & Marple-Cantrell (2022) found out that a shift of resources from smallholder farming to artisanal and small-scale mining resulted in the influx of migrants who caused social problems such as teenage pregnancies and adultery, resulted in higher prices of local goods and services, induced drug abuse especially by children and worsened the incidence of violence in communities due to competition for mining land. As women and children are more affected by these problems and challenges due to their vulnerability to changing circumstances and especially any adverse effects on household expenditure such as price increases, they stand to be hurt most.

Another adverse effect to women and children as a result of the shift in resources such as labour and time from smallholder farming to artisanal and small-scale mining is the out-migration of the youth in search for greener pastures in locations where the mining takes place. Issifu (2022) argues that such out-migration causes shortages in family labour on food production, leaves women and children behind without adequate support and can even cause family separation due to the long absence of the breadwinner of the household or temptation for the woman to get a new spouse or the man to be attracted to a different woman in the location of migration (Maclin, Kelly, Perks, Vinck & Pham, 2017). This situation can be disruptive to family life and bring grief to members of the family.

The labour supply for smallholder family farms is being impacted by the mining migration stream. Both in nations with and without artisanal and small-scale mining boom economy, the size and quantity of these farms is declining. According to a review of the literature by Lowder, Skoet & Raney (2016) between 2001 and 2013, most smallholder farmers in Africa were seeing a decline in the size of their farms, which also translated into a reduction in production of food.

Similarly, Jayne et al. (2016) observed declining farm sizes between 1980 and 2000 in land-constrained African countries. Downsizing of smallholder farms due to involvement in artisanal and small-scale mining is by no means restricted to Africa, but given their widespread existence on the continent, their reduced size and under-capitalized agricultural subsistence production supplemented by non-market activities, they impart a vulnerable disposition to rural areas, disproportionately affecting women and children who bear the brunt of food insecurity at the household level due to the limited options open to them.

Other trends and undesired consequences in the social restructuring as a result of the movement of resources away from smallholder farming to artisanal and small-scale mining result in the location separation of reproductive couples for reasons of earning income from artisanal and small-scale mining activities creating incomplete family units with dire consequences for women and children whose dependency ties to the male house member are still strong. This often leads to women trying to use matrilineal ties to strengthen their material security instead of the traditional dependence on male family members. Furthermore, with resource allocations shifting to artisanal and small-scale mining resulting in possible relocation of the male members of the family can weaken gender-based and age-dependency ties within the family.

Loss of land to artisanal and small-scale mining from smallholder farming has severe consequences for women and children in rural areas that have very limited livelihood options if the benefits are not adequate to offset such losses through established complementarity between smallholder farming and artisanal and small-scale mining as argued below.

On the contrary to artisanal and small-scale mining adversely affecting smallholder farming in rural communities, there are other scholarships that contend that there is a beneficial and symbiotic relationship between the two sectors and that they play complementary rather than competing roles in enhancing the livelihood options of rural people all-year-round.

In rural areas where agriculture is the primary source of income for the local population, artisanal small-scale mining is also practiced (Mabe, Owusu-Sekyere & Adeosun, 2021). The way that the agriculture and artisanal and small-scale mining sectors are framed in relation to each other suggests that they play complementary roles in the economy. The agriculture sector is expected to supply the food, livestock, and semi-processed food that miners need to meet

their dietary needs, while the artisanal and small-scale sector is expected to provide a ready market for the agricultural products and draw in excess labour during the "lean" season.

Hilson (2016) in an extensive examination of both sectors has adequately demonstrated that, in numerous instances where both smallholder farming and artisanal and small-scale mining align, artisanal and small-scale mining has emerged as the principal source of revenue. Thus, a great number of rural families, hundreds of thousands of them, find a balance between farming endeavour and artisanal and small-scale mining. More and more, the latter's earnings are being used as spare cash and occasionally as fuel for the former thereby creating a win-win situation in improving rural livelihoods.

All things considered, Huntington & Marple-Cantrell (2022) analyse that artisanal and small-scale mining is a major source of livelihood and is completely integrated into the local economy in many rural areas where the activities of the sector take place. Since many artisanal and small-scale miners are also involved in the local community, there is some evidence to support the claim that alternative livelihood programmes such as artisanal and small-scale mining will help indigenous people support their livelihoods and have the potential to be long-lasting.

Many families work in agriculture and artisanal and small-scale mining concurrently, rationally shifting resources and labour from one to the other (Maconachie & Hilson, 2018). Artisanal and small-scale mining earnings are used to buy essential farm supplies to sustain agriculture, and the agrarian sector's earnings and food are used to support artisanal and small-scale mining (Persaud, Telmer, Costa & Moore, 2017; Mkodzongi & Spiegel, 2019). As a result, the revenues from the artisanal and small-scale mining economy complement agricultural income and vice versa. For example, in a labour allocation cycle, the economies of

rice farming and diamond mining complement each other as artisanal and small-scale mining can be done during the dry season when river levels are low, and farming can be done during the rainy season when the water levels rise (Pijpers 2020a). The connections between artisanal and small-scale mining and subsistence farming have an impact on gender equality and food security as well and as Hilson (2016) points out, artisanal and small-scale mining supports farming and should be seen more as a means of subsistence and less as an entrepreneurial endeavour because it has frequently become the main source of income for households.

Additionally, rural Africa is undergoing a marked "deagrarianisation" in reaction to liberalised markets that have adversely affected rural agriculture, indicating that the shift away from the dominance of smallholder agriculture is not transient (Hungwe, 2014). The argument is that non-farm activities are the main source of disposable income for households in these rural areas, with agriculture serving as a secondary role in their lifestyles. Artisanal and small-scale mining has supplanted farming as the main source of disposable income in traditional "deagrarianised" landscapes, in many instances, and farming is now done mostly for home food security rather than market supply. Household finances and other forms of capital now flow between agriculture and artisanal and small-scale mining as mentioned earlier. Lahiri-Dutt (2018) does not deny that farming is merely a side engagement in most rural areas in Africa where artisanal and small-scale gold and diamond mining has become a lucrative profession. It is even contemplated that to succeed in artisanal and small-scale mining, one should avoid farming. However, it is not likely that artisanal and small-scale mining will completely replace agricultural livelihoods since new frontier communities will probably always depend on farming for food and a means of subsistence, and their identities will probably be inextricably linked to the land.

Men in rural areas shift away from agriculture and toward non-agrarian industries like trading, artisanal and small-scale mining in mineral-rich areas, local services, and migrant labour. Meanwhile, women's jobs involve balancing both non-agricultural and agricultural activities and most notably, a long-standing gender divide, which has been especially evident in most of rural Africa, between men and women as wage earners and providers of household subsistence is being broken. Bryceson (2019) has documented that women discovered a range of income-generating interests that extend their home-making abilities in addition to their domestic labour responsibilities. Artisanal and small-scale mining is therefore providing those spaces for them to make use of those skills to earn income to support their families and themselves.

Whether it is considered that artisanal and small-scale mining and smallholder farming are complementary or competitive to each other, it has implications for the livelihoods of women and children, which will be considered later in this thesis in the evaluation of the findings section in relation to the research communities in Kono and Bo districts of Sierra Leone.

2.18 Artisanal and Small-Scale Mining and Sierra Leone-The Current Situation

In Sierra Leone, "Artisanal mining operations" is defined as "mining operations that do not exceed a depth of ten meters" by the 2009 Mines and Minerals Act. Additionally, it states that artisanal mining may be conducted under the name of a Sierra Leonean individual holding an artisanal mining license by individuals, co-operativess, joint ventures, partnerships, or corporate organisations. A license cannot be transferred to another person and is valid for one year and may be renewed three times for a total of no more than one year at a time. Curently in Sierra Leone, artisanal mining is allowed in areas up to 0.5 hectares in size, with a maximum

of 50 mining workers (labourers) per mining license. The Act also outlines the environmental protection responsibilities of miners.

The decline in agricultural productivity in Sierra Leone has prompted rural households to seek alternative sources of income, with artisanal and small-scale mining emerging as a viable option (Fayiah, Turay, Fayiah, Singh & Verkhoturov, 2023). While artisanal and small-scale mining provides supplementary income, it also exacerbates social and environmental challenges, raising questions about its long-term sustainability (Hilson, 2016a). How can Sierra Leone balance the economic benefits of artisanal and small-scale mining with its adverse impacts on rural livelihoods and the environment?

Artisanal and small-scale mining offers rural households in Sierra Leone a means to diversify income streams and withstand economic uncertainties, complementing agricultural activities during different seasons (Hilson, 2016a). However, artisanal and small-scale mining's informal nature and reliance on women and child labour perpetuate social inequalities and pose risks to vulnerable populations (Hilson, Mondlane, Hilson, Arnall & Laing, 2021). Can artisanal and small-scale mining be formalised in a way that promotes equitable access to resources and protect the rights of women and children?

The influx of migrants into mining communities stimulates local economies through increased spending but also strains existing infrastructure and social services (Rutherford, 2022). This population mobility brings both opportunities for local economic growth and challenges related to social cohesion and resource management. How can Sierra Leone harness the economic benefits of artisanal and small-scale mining migration while mitigating its adverse social impacts?

Children's involvement in artisanal and small-scale mining, driven by economic necessity and limited affordability of the cost of education, raises concerns about their well-being and future opportunities (O'Driscoll, 2017). While artisanal and small-scale mining income may support schooling costs, it also exposes children to harsh conditions and perpetuates cycles of poverty. How can Sierra Leone balance the immediate economic needs of families with the long-term welfare of children involved in artisanal and small-scale mining?

Despite the challenges posed by artisanal and small-scale mining, women's participation in the sector offers opportunities for skills development and income generation in the absence of alternative employment options in rural communities (Buss & Rutherford, 2020). However, structural gender inequalities limit women's access to resources and decision-making power in artisanal and small-scale mining activities (Buss et al., 2019). How can Sierra Leone empower women in artisanal and small-scale mining while addressing entrenched gender disparities?

In conclusion, addressing the complexities of artisanal and small-scale mining in Sierra Leone requires a nuanced approach that balances economic opportunities with social and environmental considerations. Formalisation efforts must prioritise equity and sustainability, ensuring that all stakeholders, including women and children, benefit from artisanal and small-scale mining activities while safeguarding their rights and well-being. By fostering inclusive policies and strengthening regulatory frameworks especially at the local levels, Sierra Leone can harness the potential of artisanal and small-scale mining to drive economic development, contribute to the realisation of the SDGs, while promoting social justice and responsible stewardship of mineral resources by addressing the economic, environmental, social, and health and safety concerns of the sector as outlined below.

2.18.1 Economic Impact

Artisanal and small-scale mining has emerged as a vital contributor to the economies of many Sub-Saharan African countries, including Sierra Leone, fostering economic growth and poverty reduction while promoting educational opportunities for children and empowering marginalised groups, such as women (Stylo, De Haan & Davis, 2020). In Sierra Leone particularly, artisanal and small-scale mining plays a pivotal role, with up to 90% of mineral exports attributed to booming artisanal diamond mining, as noted by the Sierra Leone Embassy in Washington DC, USA (Sierra Leone Embassy, 2016). This sector is heralded by scholars like Hilson & Maconachie (2020a) as a significant driver of progress towards achieving the Sustainable Development Goals (SDGs), offering employment to millions in rural areas and complementing agricultural activities.

Acknowledging artisanal and small-scale mining's substantial contribution to rural economies, Hilson (2020a) emphasises its role in sustaining subsistence agriculture and providing livelihoods to millions across Sub-Saharan Africa. This form of mining not only generates direct employment but also fosters diversified economic activities, amplifying its impact on local communities' well-being as most income from its operations is spent in the country.

However, amidst the praise for artisanal and small-scale mining's economic benefits, there are dissenting voices highlighting its darker side. Ibrahim, Rutherford & Buss (2022) raise concerns about the sector's association with corruption, civil conflict fueled by "blood diamonds," and intra-community strife over wealth and land ownership. Dupuy (2017) echoes these sentiments, underscoring how benefits from artisanal and small-scale mining often accrue to elite groups and the state, rather than filtering down to the communities where mining

activities occur. Contrary to the promises outlined in Community Development Agreements[6] (CDA), communities affected by artisanal and small-scale mining often lack basic infrastructure and amenities, perpetuating their marginalisation (Hira & Busumtwi-Sam, 2021).

These critiques point to systemic issues that go beyond mere economic analyses. Maconachie, & Conteh (2021) argue that donor-driven mineral-for-development initiatives have failed to alleviate poverty for the majority of Sierra Leoneans due to entrenched power dynamics favouring elites, people in government and local chiefs. To address these underlying challenges, a holistic approach is needed, one that examines the intricate web of power relations, historical contexts, and social structures underpinning the mining sector in Sierra Leone. Genuine reform must go beyond surface-level policy changes and confront the deep-seated inequalities perpetuated by artisanal and small-scale mining activities.

2.18.2 Environmental Impact

Artisanal and small-scale mining undoubtedly brings both positive and negative impacts to rural communities, ranging from employment opportunities and educational enhancement to environmental degradation and health hazards. Brown (2020) highlights the dual nature of artisanal and small-scale mining, showcasing its potential to create livelihoods and strengthen social networks in rural areas, while simultaneously posing threats to agriculture and food security. This dichotomy prompts urgent discussions on harmonising artisanal and small-scale mining with agriculture, the backbone of Sierra Leone's economy.

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[6] Community Development Agreements (CDAs) are explicitly passed legislation requiring mining firms to fund and implement socio-economic development initiatives in the areas where they extract resources (Dupuy, 2014).

The 2009 Mines and Minerals Act of Sierra Leone stipulates miners' obligations to protect the environment. For artisanal and small-scale mining, this only includes the license holder's obligation to carry out rehabilitation and reclamation of a mined-out area. However, given the fact that many gold and diamond deposits are gradually declining, and many miners now use more advanced tools to extract ore, there is emerging consensus that a new definition for artisanal and small-scale mining must be adopted soon in Sierra Leone to accommodate the changing nature of the sector, as reflected in the Artisanal Mining Policy 2018.

The allure of quick financial gain often drives individuals into artisanal and small-scale mining, leading to practices that prioritise profit over environmental conservation (Ofosu, Dittmann, Sarpong & Botchie, 2020). O'Driscoll (2017) warns of the widespread use of mercury in artisanal and small-scale mining, resulting in air and water pollution, endangering human health and aquatic ecosystems. The consequences of mercury pollution extend to agricultural lands, contaminating soils and staple crops, posing long-term health risks to communities (Sakakibara & Sera, 2020; Esdaile & Chalker, 2018).

Efforts to mitigate the environmental impact of artisanal and small-scale mining are imperative. Hilson, Hu & Kumah (2020) advocate for ratifying and implementing the Minamata Convention[7] to regulate mercury use, promote safe practices, and explore alternative methods. However, despite Sierra Leone's alluvial gold deposits requiring no mercury for

[7] The Minamata Convention on Mercury is a multilateral environmental agreement that obligates Parties to reduce or control sources of mercury pollution in order to protect human health and the environment. The Convention includes provisions on providing technical assistance and capacity building, particularly for developing countries and countries with economies in transition, to promote its effective implementation (Evers, Keane, Basu & Buck, 2016).

extraction, recent reports suggest a worrying trend of mercury use in some regions (Hilson, Zolnikov, Ortis & Kumah, 2018).

Beyond environmental concerns, artisanal and small-scale mining poses significant health and safety risks, particularly to vulnerable groups like children and women (Ajith, Ghosh & Janss, 2020). Children, often employed in tedious tasks, face the threat of injuries and fatalities due to unsafe working conditions (Abdurashidovich, 2020; Human Rights Watch, 2013). Similarly, women engaged in manual labour endure injuries from rock-crushing activities, further exacerbating health vulnerabilities (Ajith & Ghosh, 2019).

Land degradation is another consequence of artisanal and small-scale mining, characterised by shallow pits and extensive mining areas encroaching upon agricultural lands and forests (Owusu, Bansah & Mensah, 2019). Bakobie (2020) notes the invasion of farms and economic tree plantations by artisanal and small-scale mining activities, disrupting rural livelihoods and intensifying land use conflicts. Esdaile & Chalker (2018) also caution against the potential shift of labour from agriculture to artisanal and small-scale mining, which could destabilise already fragile rural economies.

While the literature offers insights into artisanal and small-scale mining's multifaceted impacts, there is a call for deeper understanding through participant-oriented research methodologies. By capturing the lived experiences of those involved in artisanal and small-scale mining, interpretative phenomenological analysis allows for a nuanced exploration of the complexities inherent in artisanal and small-scale mining's interactions with rural communities. As artisanal and small-scale mining continues to shape rural landscapes and livelihoods, such research endeavours become essential for informing holistic and sustainable development strategies.

2.18.3 Health and Safety Impact

Artisanal and small-scale mining pose significant health and safety risks to both miners and surrounding communities, yet these challenges remain inadequately addressed in scholarly literature and government policies (Smith, Ali, Bofinger & Collins, 2016). The clandestine nature of many artisanal and small-scale mining operations, particularly in remote rural areas, hampers regulatory enforcement and reporting mechanisms, contributing to unreported accidents and fatalities (Asuamah, 2023).

In addition to the general lack of safety measures, gender-specific health and safety concerns within artisanal and small-scale mining receive insufficient attention, particularly regarding women's roles in mining activities (Arthur-Holmes & Busia, 2022). Despite the increasing participation of women in artisanal and small-scale mining, occupational health and safety regulations tailored to their needs are often overlooked, perpetuating gender disparities in workplace safety (Arthur-Holmes & Abrefa Busia, 2021; Hinton, Hinton & Veiga, 2017).

This neglect of women and children's safety is compounded by the informal nature of artisanal and small-scale mining, where labour rules and safety protocols are routinely disregarded (WHO, 2016). The absence of gender-sensitive safety management systems further exacerbate the vulnerability of female miners, who are often marginalised in legislative frameworks (Ofosu, Torbor & Sarpong, 2022). Consequently, the health and safety needs of women in artisanal and small-scale mining remain largely unaddressed, highlighting a critical gap in research and policy.

Moreover, children are disproportionately affected by the hazards of artisanal and small-scale mining, with nearly all work undertaken by children in artisanal and small-scale mining considered tedious and prohibited under international labour conventions (ILO, 2005).

However, the informal nature of artisanal and small-scale mining and the economic circumstances of families often make it difficult to curb children working in the sector. Wyatt et al. (2019) highlight the compounded risks faced by children, including exposure to mercury and malnutrition, compromising their immune responses and long-term health outcomes.

Children in artisanal and small-scale mining communities are exposed to a cocktail of harmful chemicals from an early age, with detrimental effects on their physical and cognitive development (Landrigan et al., 2022). Prenatal exposure to heavy metals and other toxins, combined with ongoing environmental contamination, poses grave health risks to children in artisanal and small-scale mining-affected areas. These health implications underscore the urgent need for comprehensive interventions to protect the well-being of children in artisanal and small-scale mining communities.

In Sierra Leone, artisanal and small-scale mining presents a multitude of economic, social, environmental, and health challenges. Zvarivadza (2018) outlines some of the environmental, health and safey challenges associated with artisanal and small-scale mining in Appendix J. Addressing these issues requires concerted efforts from governments, regulatory bodies, and international organisations to enforce safety regulations, mitigate environmental risks, and safeguard the health of all individuals involved in artisanal and small-scale mining activities. Only through collaborative local action at the community level can the harmful impacts of artisanal and small-scale mining be effectively addressed and the well-being of affected communities ensured.

2.19 Formalisation of Artisanal and Small-Scale Mining - The Big Debate

Formalisation in artisanal and small-scale mining is akin to solving a complex puzzle. Defined as the process of integrating artisanal and small-scale mining into the formal economy,

formalisation encompasses legal and regulatory frameworks, access to minerals, organisational structures for miners, and resources such as capital and technical assistance (Singo & Seguin, 2018; UNEP, 2012). However, the definitions of formalisation vary, revealing different perspectives and priorities. The UNEP emphasises economic integration to address sectoral challenges, while Singo and Seguin focus more on legality and regulation (Verbrugge, 2015). This divergence highlights the multifaceted nature of formalisation and the need for clarity on its components and objectives.

Moreover, there is a lack of consensus on what constitutes formalisation, adding another layer of complexity to the puzzle (Maconachie & Conteh, 2020). Legalisation and regulation do not always lead to economic integration, and vice versa, posing challenges for policymakers and scholars alike (Singo & Seguin, 2018). Additionally, the perspectives of policymakers and academics diverge on the issue, with scholars often analysing artisanal and small-scale mining through theories of informality (Hilson & Maconachie, 2017). This disparity underscores the need for a deeper exploration of the motives behind formalisation efforts and the resistance they encounter.

The puzzle of formalisation is further complicated by conflicting viewpoints within the artisanal and small-scale mining community. Governments and donors advocate for formalisation to enhance governance, environmental management, and social responsibility (Hilson & Maconachie, 2020a). Yet, artisanal and small-scale mining operators often resist formalisation due to concerns about increased regulations, loss of autonomy, and the inability to adapt to formal sector requirements (Hilson & Maconachie, 2020b). Unpacking these tensions requires understanding the underlying dynamics driving both the push for and resistance to formalisation.

As the puzzle of formalisation unfolds, questions arise about its efficacy and implications for artisanal and small-scale mining communities. Will formalisation truly improve governance and sustainability, or will it exacerbate existing inequalities and vulnerabilities? Are there alternative approaches that can address the challenges of artisanal and small-scale mining while respecting the autonomy and livelihoods of miners? These questions underscore the need for a nuanced examination of formalisation's potential benefits and drawbacks.

Ultimately, addressing the puzzle of formalisation requires a holistic approach that considers the perspectives of all stakeholders involved. By exploring the motivations, challenges, and potential outcomes of formalisation, policymakers and scholars can develop more informed and effective strategies. Through collaborative efforts and interdisciplinary research, it is possible to navigate the complexities of formalisation and unlock solutions that promote the well-being of artisanal and small-scale mining communities while safeguarding environmental, economic, health and safety, and social interests.

2.20 Artisanal and Small-Scale Mining in Sierra Leone-Current Issues

The surge in artisanal and small-scale mining activities over the past two decades, with approximately 30 million individuals directly involved, underscores the pressing need for formalisation (World Bank, 2013). Given its substantial contribution to export earnings and the myriad social and environmental challenges it poses, governments must prioritise formalising the artisanal and small-scale mining sector to foster its development and mitigate associated problems (Hilson, Hilson, Maconachie, McQuilken & Goumandakoye, 2017). However, this imperative for formalisation has emerged relatively recently, driven in part by donor pressures and conditionalities, particularly from institutions like the World Bank and the International

Monetary Fund (Nem Singh & Camba, 2020). The agenda for formalisation has thus become intertwined with global financial policies, highlighting the complexities inherent in reconciling economic interests with social and environmental considerations.

Advocacy for formalising artisanal and small-scale mining extends beyond financial institutions, encompassing various United Nations agencies such as the International Labour Organisation (ILO), the United Nations Children's Fund (UNICEF), the United Nations Environment Programme (UNEP), and the United Nations Development Programme (UNDP) (Hilson, Bartels & Hu, 2022). These entities emphasise the need for policy reforms to address issues like child labour, hazardous working conditions, and environmental degradation inherent in informal artisanal and small-scale mining operations. Moreover, formalisation is seen as essential for aligning artisanal and small-scale mining practices with Sustainable Development Goal 8 (SDG8), which aims to promote inclusive and sustainable economic growth (Hilson & Maconachie, 2020a). However, while formalisation is promoted as a solution to these challenges, its implementation raises critical questions about its effectiveness and potential unintended consequences.

Despite the advocacy for formalisation, artisanal and small-scale mining has historically served as a vital source of livelihood for rural communities in Sierra Leone, operating largely within informal spaces (Bansah, 2019). The recent push for formalization in the country, driven partly by external pressures, introduces tensions between traditional livelihood practices and external interventions aimed at governance and regulation (Nem Singh & Camba, 2020). This tension underscores the need for nuanced approaches to formalisation in Sierra Leone that acknowledge and respect local contexts and livelihood strategies.

Additionally, the emphasis on formalisation as a panacea for the sector's woes overlooks deeper systemic issues related to governance, equity, and access to resources.

Governments throughout West Africa, including Sierra Leone, seek to raise revenue by granting licenses to people interested in investing in artisanal and small-scale mining activities or regulating and registering individuals and companies in the sector (Hilson, 2020a). This attempt to formalise and legalise artisanal and small-scale mining in Sierra Leone has the aim of developing and regulating the sector (Hilson & Maconachie, 2017). However, Verbrugge & Besmanos (2016) argue that the formalisation of artisanal and small-scale mining operations by governments for revenue mobilization purposes fail to recognize the effect on the labour force. Labour arrangements in artisanal and small-scale mining are complex and composed of a wide range of interests and stakeholders that governments need to analyse their effects when considering formalisation and regulation of the sector.

Failure by governments to examine and address the plight and concerns of the informal workforce could have the consequence of pushing them into further exploitation and hazardous working situations (Moyo, Chitaka, Lotter, Schenck & Petersen, 2022). Another consequence of not critically thinking through formalisation to raise revenue risks overlooking the rights of the labour force, most of whom are the labourers and lowly placed stakeholders in the mining operations (Van Bockstael, 2014) such as women and children. This further has the tendency

of creating the 'Matthew Effect'[8] where the government and rich concession owners reap more profits while the labourers risk reducing their little earnings as the tax burden is transferred to them.

In conclusion, while formalisation of the artisanal and small-scale mining sector in Sierra Leone is advocated by international financial institutions and United Nations agencies as a means to address social, environmental, and economic challenges, its implementation raises complex questions about governance, livelihoods, and sustainability. Any efforts toward formalisation in Sierra Leone must be contextualised within the realities of artisanal and small-scale mining communities, acknowledging their diverse livelihood strategies and historical relationships with the sector. Moreover, formalisation should not be viewed in isolation but as part of broader governance reforms process aimed at fostering equitable and sustainable development in artisanal and small-scale mining-dependent communities.

2.21 Debate of Formality or Informality

The debate surrounding informality and formality in the artisanal and small-scale mining sector is multifaceted, with conflicting viewpoints shaping the discourse (Verbrugge, Cuvelier & Van Bockstael, 2015). While informality characterises the majority of artisanal and small-scale mining operations, the reasons for its persistence are complex and varied (Echavarria, 2014). On the one hand, proponents of formality argue that it offers a pathway to

[8] The 'Matthew Effect' is a principle in the social sciences and is said to occur when a social advantage leads to further advantages; or disadvantage leads to further disadvantages – through time and creating widening gaps between those who have more and those who have less (Bonoli & Liechti, 2020).

addressing socio-economic challenges such as deforestation, child labour, and gender discrimination (Verbrugge & Besmanos, 2016). Formality is also seen as a means to enhance revenue mobilisation, improve safety standards, and promote sustainable development (Hilson, 2020b). However, the benefits of formality remain elusive in many contexts, leading to resistance and skepticism among artisanal and small-scale mining operators (Labonne, 2014).

The livelihoods of millions, especially women and children, depend on the informal artisanal and small-scale mining sector, raising concerns about the potential impact of formalisation (Hirons, 2020). While formalisation aims to enhance governance and economic opportunities, there are fears that it may undermine the precarious livelihoods of vulnerable groups (Zvarivadza, 2018). Resistance to formalisation often stems from a lack of tangible benefits to artisanal and small-scale miners in countries where it has been implemented and the failure of governments to effectively engage with artisanal and small-scale mining communities (Hilson, Hilson, Maconachie, McQuilkin & Goumandakoye, 2017).

Academic perspectives on formalisation further complicate the debate, highlighting divergent ideas and approaches (Verbrugge & Besmanos, 2016). While scholars emphasise the importance of addressing political and administrative barriers, policymakers prioritise the recognition of mineral tenure rights (Hilson, 2013). This disconnect between academia and policy contributes to the ineffectiveness of formalisation efforts, perpetuating the prevalence of informality in artisanal and small-scale mining (Hilson, Mondlane, Hilson, Arnall & Laing, 2021).

In practice, obtaining licenses and permits for formal artisanal and small-scale mining operations presents significant challenges, particularly for marginalised miners (Kalokoh & Kochtcheeva, 2022). Bureaucratic hurdles, high costs, and limited access to suitable land

hinder the formalisation process, pushing miners towards informal activities (Hilson & Maconachie, 2020a). Women and children, in particular, face additional barriers, including gender norms and unequal access to financial resources (Hilson & Maconachie, 2020a).

Moreover, political obstacles and entry barriers further complicate efforts to formalise artisanal and small-scale mining, exacerbating inequalities within the sector (Verbrugge, 2015; Clayton, 2021). Requirements such as forming cooperatives and navigating gender roles pose additional challenges for women and children in the formalisation process (Clayton, 2021). As a result, the puzzle of formalisation remains unresolved, with divergent interests, complex dynamics, and systemic barriers shaping its trajectory in the artisanal and small-scale mining sector.

Existing formalisation efforts in artisanal and small-scale mining sector have been criticised for their failure to address the complex needs and concerns of a massive informal workforce, leaving them vulnerable to exploitation and hazardous working conditions (Verbrugge & Besmanos, 2016). Artisanal and small-scale mining labour arrangements often choose to remain informal due to rational reasons such as avoiding income tax on their already meager earnings (Moyo, Chitaka, Lotter, Schenck & Petersen, 2022). However, this informality perpetuates a cycle of vulnerability and marginalisation, particularly for women and children involved in activities like panning, crushing, and grinding (Danielsen & Hinton, 2020).

Critiques of formalisation frameworks highlight the tendency to overlook the heterogeneous nature of the artisanal and small-scale mining sector, leading to oversimplified assumptions about stakeholder organisational arrangements (Moyo, Chitaka, Lotter, Schenck & Petersen, 2022). In countries like Sierra Leone, a highly centralised and weak government

enforcement capacity further exacerbates the persistence of informality, as miners see little inducement to comply with regulations that offer no tangible benefits or protections (Maconachie & Conteh, 2021). The flexibility provided by operating without a license and the transient nature of the activities allow miners to adapt to seasonal and temporary mining activities, complementing their off-farm income (Verbrugge & Besmanos, 2016; Maconachie, 2017).

Moreover, the existing regulatory framework erroneously assumes a homogeneity among artisanal and small-scale mining operators, overlooking the diverse range of stakeholders involved in the sector (Verbrugge & Besmanos, 2016). These stakeholders, including women, children, landowners, investors, and traders, have complex organisational arrangements and power dynamics that formalisation efforts fail to recognise and adequately address (Thornton, 2014). Women and children, in particular, often find themselves in disadvantaged positions due to limited resources and decision-making power (Buss et al., 2019).

In Sierra Leone, the dual tenure rights further complicate formalisation efforts, making it expensive and complex to obtain tenure rights if enforced (Blanc, 2015). The constitution vests all resources to the government, regardless of land ownership, leading to a disconnect between academic analysis and policy dialogue on land titling and formalisation (Hilson, Hilson, Maconachie, McQuilkin & Goumandakoye, 2017). Disaggregating land titling from other property rights becomes crucial to avoid misleading situations that hinder policy dialogue and economic programmes (Blanc, 2015).

Addressing the lack of security in land tenure is essential for effective formalisation efforts in the artisanal and small-scale mining sector (Hilson, 2020a). Without secure tenure,

formalisation will continue to face challenges, perpetuating informality and hindering sustainable resource management (Tech, 2015). In response, countries like Sierra Leone are implementing strategies to formalise the artisanal and small-scale mining sector, including allocating land, updating laws and regulations, organising supply chains, and facilitating access to finance and markets (Leone, 2020). However, the success of these efforts depends on their ability to address the complex realities and diverse stakeholders and arrangements within the artisanal and small-scale mining sector.

The Government of Sierra Leone anticipates numerous benefits from formalising the artisanal and small-scale mining sector, including enhanced monitoring, improved revenue collection, and better working conditions (Kinyondo & Huggins, 2020). However, critics argue that such expectations oversimplify the complex dynamics and relationships within the sector, overlooking the potential challenges of implementation (Leone, 2020). Formalisation is seen as a solution to issues such as environmental degradation and exploitation of miners, yet its efficacy in addressing these concerns remains uncertain.

Proponents of formalisation highlight the economic significance of the artisanal and small-scale mining sector in generating foreign exchange earnings for developing countries (Hilson & McQuilken, 2014) and studies underscore the substantial contribution of artisanal and small-scale mining mineral exports, particularly in countries like Sierra Leone (Owusu, Bansah & Mensah, 2019; Fayiah, Dong, Singh, Fayiah, 2020; Maconachie & Conteh, 2021). However, critics caution that the benefits of foreign exchange earnings are often unevenly distributed, with minimal gains reaching low-paid workers and local communities (Buxton, 2013). M'cleod & Ganson (2018) however note that corruption and institutional weaknesses

further exacerbate this inequality, casting doubt on the transformative potential of formalisation.

Proponents argue that formalisation could mitigate issues like child labour, prevalent in the informal artisanal and small-scale mining sector (Kumar, Wata & Muthuraman, 2021). However, scholars caution against a simplistic approach, noting that formalisation alone may not address the root causes of child labour (Maconachie & Hilson, 2016). In Sierra Leone, children's involvement in artisanal and small-scale mining often stems from socio-economic pressures, raising concerns that formalisation efforts must consider the broader context to avoid unintended negative consequences (Maconachie & Hilson, 2016).

Byemba (2020) illustrates the positive impact of formalisation on women in the Democratic Republic of Congo, where formalisation has empowered women to form cooperatives and attain equal status as stakeholders. However, Buss et al. (2019) challenge this narrative, arguing that formalisation overlooks the gender inequalities inherent in artisanal and small-scale mining. They contend that women's ‘triple burden’ limits their participation and benefits from formalisation, highlighting the need for gender-sensitive approaches.

For Formalisation to be meaningful, there must be a convergence between academic analysis and policy frameworks to avoid exacerbating inequality within the artisanal and small-scale mining sector (Byemba, 2020). Women and children, often marginalised in the formalisation process, must be central to discussions and policy decisions to ensure equitable outcomes (Buss et al., 2019). Examining the lived experiences of women and children in formalised mining operations will provide valuable insights into the effectiveness of policy changes in Sierra Leone's mining sector.

2.22 Summary

The research focuses on understanding the impacts of artisanal and small-scale mining on women and children in Sierra Leone's Kono and Bo districts. Artisanal and small-scale mining, characterised by informal and often illegal mineral extraction methods, presents complex challenges encompassing social, economic, political, and environmental dimensions (Hilson & Maconachie, 2020a). Grounded in gender, parental characteristics and new sociology of childhood frameworks, this study aims to provide a comprehensive analysis of the diverse issues faced by women and children in artisanal and small-scale mining-affected communities (Lederman & Lederman, 2015).

Historically, artisanal and small-scale mining has played a significant role in West Africa's economy, particularly in Sierra Leone, where it has provided employment and livelihoods for rural populations (Pijpers, 2020b). However, alongside its economic contributions, artisanal and small-scale mining is associated with environmental degradation, health risks, and social disruptions (Maconachie & Conteh, 2021) which cannot be overlooked. While some view artisanal and small-scale mining as a pathway out of poverty, others characterise it as a source of conflict, corruption, and poverty entrenchment (Bah, 2016; Moti, 2019).

Gender disparities in artisanal and small-scale mining are pronounced, with women often marginalised and relegated to low-paid, non-mining tasks (Rutherford & Buss, 2019). Yet, conflicting perspectives exist, with some arguing that artisanal and small-scale mining offers women opportunities for economic empowerment (McQuilken & Hilson, 2016). Similarly, children's involvement in artisanal and small-scale mining raises concerns about

child labour and its associated risks, although contextual factors and scholarly findings complicate and contradict this narrative (Potter & Lupilya, 2016; Verbrugge, 2016).

Despite women and children's significant contributions to artisanal and small-scale mining, they experience limited benefits due to structural barriers, gender discrimination, and informal labour arrangements (Hilson & Maconachie, 2020a). Efforts to formalise artisanal and small-scale mining operations aim to address these challenges, yet implementation remains contentious and often disregards local realities and gender dynamics (Hilson & Maconachie, 2017). Formalisation initiatives have been met with resistance from artisanal and small-scale mining operators, who prefer the flexibility and autonomy of informal arrangements (Conteh & Maconachie, 2021).

The persistence of informal artisanal and small-scale mining operations underscores the need for nuanced policy approaches that account for gender dimensions and local contexts (Hilson & Maconachie, 2020b). As the debate continues over formalisation's efficacy, women and children in artisanal and small-scale mining-affected communities navigate complex livelihood choices shaped by gender roles and economic pressures (Stokes-Walters et al., 2021).

This study seeks to address these gaps by conducting a comprehensive examination of artisanal and small-scale mining's impacts on women and children in Sierra Leone. Being guided and inspired by chosen theoretical frameworks, the research aims to provide insights into the nuanced experiences of women and children in artisanal and small-scale mining-affected communities. Through participant-oriented analysis, the study will capture the lived experiences and challenges faced by women and children, informing evidence-based policy interventions tailored to address their needs. Thus, the study endeavours to piece together the

puzzle of artisanal and small-scale mining's impacts on vulnerable populations, offering a pathway towards more inclusive and sustainable development in artisanal and small-scale mining-affected regions.

CHAPTER 3: RESEARCH METHOD

3.1 Introduction

In conducting academic research, the method refers to the instruments and strategies used in the research (Walliman, 2021). Any type of inquiry meant to unearth novel or intriguing facts is broadly referred to as research. The rigour with which this activity is completed will, like with other activities, be reflected in the quality of the output. The research method encompasses the strategies, tools, and procedures utilised to gather, analyse, and interpret data to address research questions or hypotheses. Methodology includes the selection of research design (qualitative, quantitative, or mixed methods), data collection techniques (surveys, interviews, experiments), sampling methods, and data analysis strategies (Newman & Gough, 2020). A well-defined methodology ensures the research process is transparent, replicable, and scientifically rigorous, providing credible and reliable results that contribute to the knowledge base of the respective field (Pandey & Pandey, 2021).

The following section discusses the qualitative research approach adopted for this study, focusing on a single case study within a constructivist paradigm. The research focuses on populations of Bo and Kono districts of the Republic of Sierra Leone, with a sample selected through purposive sampling to ensure relevance and depth. Data collection was carried out using in-depth interviews, providing rich, detailed insights. The data analysis method employed was a manual thematic analysis, which facilitated the identification of key themes and patterns related to the research questions. This methodology ensures a comprehensive understanding of the effects of artisanal and small-scale mining on women and children in the research communities.

The selection of Kono and Bo Districts for analysis in the study of artisanal and small-scale mining conditions for women and children was based on several key factors. Firstly, Kono District's status as the largest diamond producer in Sierra Leone, with an estimated 80% of the country's diamonds originating from artisanal and small-scale mining in the district (Taylor, 2014), made it a crucial area to investigate the impacts of artisanal and small-scale mining on vulnerable groups. Additionally, the district's ethnically diverse population, along with its significant religious diversity (Kabba 2018), provided a rich socio-cultural context for understanding the varied experiences of women and children in artisanal and small-scale mining. Bo District, while not as prominent in diamond production as Kono, still had a notable artisanal and small-scale mining sector, particularly for diamonds and gold. Its diverse ethnic and religious makeup, coupled with its significant population (Kabba 2018), made it a valuable counterpart for comparison with Kono District. Moreover, both districts' geographical characteristics, with Kono dominated by highlands and mountains and Bo featuring a more varied landscape, offered distinct environmental contexts to explore the challenges and opportunities faced by women and children in artisanal and small-scale mining. Overall, the selection of Kono and Bo districts allowed for a comprehensive analysis of artisanal and small-scale mining conditions, considering both the economic significance of the districts and the socio-cultural and geographical factors influencing artisanal and small-scale mining practices. This multi-sited research approach justified the comparison of the two districts, highlighting how context influenced the research outcomes.

This chapter on the study of the effects of artisanal and small-scale mining on women and children in Kono and Bo districts of the Republic of Sierra Leone would outline the research method used for the study. These include the research approach and design which

employed the qualitative research method to study the nature of the phenomenon of artisanal and small-scale mining as the information to be obtained was descriptive and non-numerical in content. The case study as an appropriate methodology was used as the research needed an intensive and systematic investigation (Mohajan, 2018) of the population involved in the artisanal and small-scale mining activities and also because the research involved the examination of the complex phenomenon of artisanal and scale-scale mining in its natural setting to increase the understanding of its operations, and as Heale & Twycross (2018) advise, an intrinsic single-type research method was best suited for this process. The philosophical underpinnings of the constructivist paradigm were explored to recognise the importance of the subjective human creation of meaning in this study while not rejecting the notion of objectivity. The chapter also goes on to define the case/unit of analysis for the study as well as the case binding.

The chapter proceeds to describe the study population which consists of the people living in the selected mining communities in the two districts of Bo and Kono where artisanal and small-scale mining activities take place, as well as the sample frame and the sample selection process. The chapter progresses with defining the sampling method which employed the purposive sampling technique, a non-probability technique with the main goal to "focus on particular characteristics of a population that are of interest, which will best enable the researcher to answer the research questions" (Rai & Thapa, 2015, p.6).

The data collection describes the process of gathering and measuring information on variables in an established and systematic way that enables the researcher to answer the research questions and evaluate the research outcome. The data collection tools used, namely unstructured individual interviews, focus group discussions and direct field observations are

also described. Manual data coding of the textual interview notes and the ethical assurances of confidentiality, anonymity, voluntary consent for the research participants are also dealt with. The data analysis describes how the themes were arrived at and the emerging findings from the research based on the research questions and objectives. The chapter concludes with a summary.

3.2 Research Approach and Design

The research into the effects of artisanal and small-scale mining on women and children in the Bo and Kono districts of the Republic of Sierra Leone employed the qualitative methodology. This approach is consistent with the naturalistic approach (McInnes, Peters, Bonney & Halcomb, 2017) and embraces phenomena by analysing behaviours, relations and experiences without the use of complex statistical methods or the processing of numerical data (Hennink, Hutter & Bailey, 2020)

The qualitative approach was considered appropriate for this research topic because it sought to delve into answering questions bordering on ‘how’, ‘why’, ‘when’, ‘what’ and ‘where’ artisanal and small-scale mining affects children and women. The quantitative approach was considered as an alternative method, but the idea was discarded because it involves a systematic examination of phenomena using statistical and mathematical methods and numeric data (Basias & Pollalis, 2018) which are not relevant for this research that uses the lived experiences of participants. The qualitative methodology was also appropriate for this topic because it studied the social phenomena of artisanal and small-scale mining from the participants’ viewpoints (Hennink, Hutter & Bailey, 2020) and provided advantages such as assisting to “understand the nature and complexity of the phenomenon being considered” (Basias & Pollalis, 2018, p. 94) as well as support the research into the effects of artisanal and

small-scale mining on women and children in their natural environment (Mohajan, 2018). However, evaluated against the quantitative approach, or mixed method approach, which deals with the causal relations between the variables under study with data that can be quantified (Queirós, Faria & Almeida, 2017), this research needs no quantification as it deals with the experiences of participants. The added advantage of using the qualitative research approach was to support its depth by maintaining or increasing the quality of recording, understanding, and analysis of the text without quantifying them into figures (Basias & Pollalis, 2018) but maintaining them in their original texts. Other methods such as the mixed methods or quantitative approaches lean towards using statistical methods to analyse the data. This is not relevant when the information collected is of textual nature.

The sample size in this research was relatively small in order to allow for in-depth interviews and discussions on the phenomenon of artisanal and small-scale mining using the limited time and other resources available (Young & Casey, 2019). Such a small sample size also allowed for exploring deeply the lived experiences of participants on the effects of artisanal and small-scale mining (Basias & Pollalis, 2018) from the men, women and child participants of the research, whereas in quantitative and mixed methods approach, large samples are needed in order to establish the causal relations between the variables for generalization (Rahman, 2020).

The qualitative approach as a methodology also had the power to explore significant lived experiences of hardship, coping strategies, exploitation, and dependency that other research methodologies such as quantitative and mixed methods approaches do not lend themselves to (Bryman, 2017). The qualitative approach therefore allowed for the discovery of

how much agency participants involved in artisanal and small-scale mining activities can have in such empowering and disabling situations and environments (Miller, Chan & Farmer, 2018).

While the qualitative approach enabled the research to conduct unstructured interviews with individuals and focus groups to discuss the phenomenon of artisanal and small-scale mining, and then transcribe the interviews and analyse the information on how it affects them, the quantitative method develops structured, pre-determined questions for participants to answer which misses other relevant information that participants may have outside of the structured questions (Mahama & Khalifa, 2017). The qualitative approach was also concerned with aspects of reality that cannot be quantified, as well as with social relationships derived from meanings, aspirations, motives, attitudes and values which cannot be condensed into quantitative variables as may be found in quantitative approaches (Maxwell, 2021). These social relationships may be many and complicated such as power relations between women and men or the economic effects of children's involvement in artisanal and small-scale mining activities. Other methods such as quantitative studies need to use clearly defined variables to measure covariation between them (Thompson, & Carlson, 2017) which is not suitable for this type of research because lived experiences of women and children in artisanal and small-scale mining cannot be quantified.

Additionally, the researcher had his own biases and points of view with regard to the effects of artisanal and small-scale mining on women and children as the researcher was both the subject and object of the research (Queirós, Faria & Almeida, 2017). This was internal to conducting, analysing and interpreting the data to be collected. Biases in quantitative and mixed methods on the other hand are external to the data analysis and interpretation since the data is

collected objectively and adopts formal instruments and structured procedures for the collection of the data (Queirós, Faria & Almeida, 2017).

In collecting, analysing and interpreting the data on the effects of artisanal and small-scale mining on women and children, no hypothesis was needed as it was difficult to predict the results from the feelings of the participants and because qualitative research design is typically flexible and subjective (Haven & Van Grootel, 2019). This implies that both the theoretical framework and hypothesis are less structured and therefore appropriate for a qualitative approach unlike the quantitative and mixed methods approaches that require well-structured theoretical frameworks and hypotheses testing (Haven & Van Grootel, 2019).

The qualitative approach used interpretative techniques to develop the research with the participants by giving a good opportunity to understand deliberations on the lived experiences of participants (Alase, 2017). Quantitative and mixed methods do not lend themselves to such textual interpretation and also with participants.

Many Sierra Leoneans still think that communities that have minerals resources and in which artisanal and small-scale mining takes place have better economic and social facilities than those without mining activities (Ankenbrand, Welter & Engwicht, 2021). This is why qualitative research is better placed to explore more about these differences, if they exist, in order to assign reasons why it is so or not and to recommend improvements in the well-being of these communities generally and women and children specifically. Finding these differences will be facilitated by employing the qualitative approach which will support in a deeper understanding of the factors and experiences that combine to produce and reproduce any differentiated effects on women and children in their participation in artisanal and small-scale mining activities. To understand in detail these effects on women and children, the method

used a case study approach to develop an in-depth description and understanding of the context of artisanal and small-scale-mining in the research communities.

3.3 Operational Definition of Variables

3.3.1 Case Study Method

There are many designs that could be used for conducting this qualitative research. These include, but are not limited to, phenomenology, ethnography, grounded theory, historical, case study, correlational, comparative, quasi-experimental and action research. All of them could be applied depending on the nature of the research problem, issue being addressed, the researchers' personal experiences, and the audiences for the study (Bhandari, 2020). A case study was the preferred design for this research on the effects of artisanal and small-scale mining on women and children because it seeks to examine the distinctiveness and complexity of artisanal and small-scale mining phenomenon and to understand the activities and circumstances within which women and children find themselves participating in the activities (Schoch, 2020).

Hancock, Algozzine & Lim (2021) explain that case study designs are more suitable for contemporary rather than historical phenomena and seek to address questions such as ‘how’ and ‘why’ where the researcher has little control over the events and the focus is on a contemporary phenomenon in a real-life context such as the lived experiences of women and children affected by artisanal and small-scale mining activities as this research seeks to do.

The research into the effects of artisanal and small-scale mining was conducted in a small geographical area with a small number of participants in Kono and Bo districts in Sierra Leone. An intrinsic single case study was more suited for this exploratory and investigative study of current real-life phenomenon of mining through a thorough contextual analysis of a

small number of events and conditions and how they are related to each other from the lived experiences of the research participants (Rahi, 2017).

3.3.2 The Single Case Study

This single case study method developed a research design to understand the real-life phenomenon of artisanal and small-scale mining activities and how they affect women and children under important natural conditions that are relevant to the research purpose (Hyett, Kenny & Dickson-Swift (2014). Yin (2014) contends that the case study research method is considerably difficult contrary to the widely held view that it is not so, and its design seeks to ensure that careful attention has been given to the process, that leads to the production of a good quality outcome of the research. The research design therefore has to suit the case and the research questions.

With that background of thoroughness, difficulty and quality of this research process, the design of the single case study on the effects of artisanal and small-scale mining on women and children took the following plan.

3.3.3 Philosophical Underpinnings

This single case study research was based on the constructivist paradigm. With this paradigm, it is considered that truth is relative and is dependent on one's perspective. The ultimate truth has been regarded as non-existent and reality is subjective and changing. Proponents of constructivism also consider that "entities exist only in the minds of the persons contemplating them" (Lincoln & Guba, 2013, p. 39). In the opinion of Cresswell (2014), constructivism deals with the development of subjective meanings and understandings of one's personal experiences concerning specific topics based on their social and historical

background. It is people who interpret and construct understandings about the world and pluralism, not relativism, is stressed with a focus on the circular dynamic tension of subject and object. The effects of artisanal and small-scale mining on women and children will depend on the perspectives of the research participants, hence the use of the constructivist paradigm.

3.3.4 The Case/Unit of Analysis

For this research, the unit of analysis or case was the phenomenon, that is, the effects of artisanal and small-scale mining on women and children. This unit seeks to answer the questions of 'how women and children are affected by artisanal and small-scale mining activities'. The analysis was focused on the 'experiences of women and children' and other stakeholders in the artisanal and small-scale mining activities (Cronin, 2014). This unit of analysis was not interested in the decision-making process of how the women came to be involved in the mining activities, whether compelled by poverty or coerced by men to be part of the mining activities. Tetnowski (2015) clarifies that the case or unit of analysis is informed by the phenomenon occurring in a bounded context, which, for this research is the phenomenon of women and children's experience in artisanal and small-scale mining which then becomes the unit of analysis.

3.3.5 Case Binding

The examination of the effects of artisanal and small-scale mining on women and children in Kono and Bo districts in Sierra Leone had boundaries so as not to veer off the focus of the research (Schoch, 2020; Yin, 2014). In this research the boundaries were the concise definition of 'artisanal and small-scale mining activities', 'women and children' aged between 10-68 years and four selected mining communities in 'Kono and Bo districts of Sierra Leone'

which relates to the definition and context of the case. As a control group, the research had a discussion with a women's group in Freetown who were between 25 and 55 years old. While the boundaries of this control group include the age bracket of these women in Freetown, the location was outside the scope of the research. Cronin (2014) notes that the "establishment of boundaries in a qualitative case study design is similar to the development of inclusion and exclusion criteria for sample selection in a quantitative study". These boundaries indicate the breadth and depth of the research and not simply the participants to be included.

3.3.6 Type of Case Study

This case study was an intrinsic, single type research underpinned by a constructivist approach. Artisanal and small-scale mining activities is of genuine interest to the researcher to better understand what is going on in that sector of mining but specifically to explore its effects women and children from their own experiences. Ridder (2017) notes that an intrinsic case study is typically undertaken to learn about a unique phenomenon, in this case artisanal and small-scale mining and how women and children are affected by the activities, which is a unique phenomenon that distinguishes it from other phenomena. This intrinsic case study adopted a single case study approach. This is because the existence of artisanal and small-scale mining activities can be richly described by a single case study (Ridder, 2017) and is better than a multiple case study because, according to Gustafsson (2017) the outcome of the research can lead to better theories.

3.4 Population and Sample of the Research Study

3.4.1 Description of Population

The population in this research comprised the populations of Bo and Kono districts of the Republic of Sierra Leone which is 1,002,361 (Bo – 617,618 (286,440 male and 331,080 female; Kono 384,743 – 189,495 male and 195,248 female), according to Statistics Sierra Leone (2018) population survey. However, the population of interest, for this research is the population of women, children and men in mining communities where artisanal and small-scale mining activities take place from whom conclusions will be drawn for the research (Majid, 2018). By approximation, the percentage of rural populations engaged in mining activities is 5.48% (Statistics Sierra Leone, 2018). This translates to about 34,000 people for Bo and 21,000 for Kono as the population of interest. Of the populations engaged in artisanal and small-scale mining activities in the two districts, there are 14,377 women, 11,851 men, 3,852 girls under 18 years and 3,920 boys under 18 years in Bo district and 8,447 women, 7,753 men, 2,379 girls under 18 years and 2,421 boys under 18 years in Kono district (Statistics Sierra Leone, 2018), as summarized in Table 1 below.

Table 1
Summary of the Population of the Study

Category	**Bo District**	**Kono District**	**Total**
Total Population Engaged in Mining	34,000	21,000	55,000
Women	14,377	8,447	22,824
Men	11,851	7,753	19,604
Girls (under 18 years)	3,852	2,379	6,231
Boys (under 18 years)	3,920	2,421	6,341

The entire population of interest of the study lives in rural areas, belong to the Mende and Kono ethnic groups in Bo and Kono districts of Sierra Leone respectively. The populations of both districts depend mainly on subsistence agriculture for their livelihoods but also engage in artisanal and small-scale mining or combine agriculture with both seasonal off-farm and on-farm activities to complement the mining activities (Zulu & Wilson, 2012). The World Bank (2020) estimates rural poverty in these districts to be up to 60% of the population who live on less than a dollar a day and Statistics Sierra Leone (2018, p.268) notes that "rural dwellers account for 56.4% of the population, but 73.3% of the poor and 87.2% of the extremely poor". In the two districts, there are more women than men in the ratio of 53% to 47% and children under the age of 19 years constitute 53% (Statistics Sierra Leone, 2018).

All invited participants attended the discussions and interviews, resulting in a 100% response rate. The study interviewed a total of 83 participants. The focus group discussions included 3 groups of male children (4 participants each, aged 10-18 years), 2 groups of female children (4 participants each, aged 11-16 years), 6 groups of adult males (4 participants each, aged 24-68 years), and 6 groups of adult females (4 participants each, aged 22-60 years). For the individual interviews, the study involved 3 male children (aged 15-17 years), 2 female children (aged 14-17 years), 4 adult females (aged 32-45 years), and 6 adult males (aged 28-68 years).

3.4.2 The Sample Frame

The sample frame for this research was the group of individuals that could be selected from the target population given the sampling process used in the research (Martínez-Mesa, González-Chica, Duquia, Bonamigo & Bastos, 2016). The sample frame is therefore a list used

to describe the population of interest and defines a set of elements from which to select a sample from the target population.

The sample frame for the research into the effects of artisanal and small-scale mining activities on women and children in Kono and Bo districts of Sierra Leone included: a) communities in the two districts where artisanal and small-scale mining takes place b) men, women and children who live in these communities and have been involved in the mining activities for at least one year to have had some experience with the effects c) government agencies, NGOs and leaders in communities where the mining activities take place. The purpose of this sample frame was to provide a means for choosing the particular members of the target population that were to be interviewed and discussions held on the phenomenon of artisanal and small-scale mining in the selected communities for this research (Mujere, 2016).

This sample frame comprised all people who were connected with the artisanal and small-scale mining activities and could share their lived experiences on its effects on women and children through individual interviews and focus group discussions. The first unit of selection from this frame was communities in which the mining activities take place and the second unit of selection was women, men and children in these communities who are involved in the activities of artisanal and small-scale mining. Therefore, the unit of selection and the target population were synonymous and ensured the completeness, accuracy and currency of the sample frame (Hassenstein & Vanella, 2022).

3.4.3 Sample Selection

In simple terms, when a small group is selected to represent the population of interest, the method of selection is referred to as a sampling method. The method of selecting part of the population of interest with a view to drawing conclusions about the population of interest

is a process called sampling (Rai & Thapa, 2015). Hence, sampling is a process used in a predetermined number of units taken from a larger population to collect data from, analyse and arrive at findings to represent the population. It was going to be costly and time-consuming to collect information from all members of the artisanal and small-scale mining communities in Bo and Kono districts, therefore there was the need to have a representative group in order to come out with valid and credible results about the population of interest (Mujere, 2016). An appropriate sampling technique was therefore required to ensure that it is representative of people who have had experience in artisanal and small-scale mining. The sample selection process is outlined below in Table 2.

Table 2
Sample Selection Process

Conditions/actions	Comments
Artisanal and small-scale mining communities in Kono and Bo districts	2 communities from each district
Mining communities accessible by road	Within 25 kms from the district capital
Community leaders willing for research to be conducted	Community leaders' acceptance of Gatekeeper's letter
Two communities each in Kono and Bo districts	4 communities in total
Availability of existing mining groups	Consent to participate in the research
Meeting with mining groups	Explanation of research purpose and clarifications, answer questions
Selection of groups	Purposive sampling technique
Individual interview and focus group participants selected	Men, women and child participants
Men's individual interviews	2 per community (8 total)
Women's individual interviews	2 per community (8 total)
Children's individual interviews	1 boy, 1 girl per community (8 total)
Men's focus groups	2 per community of 4 per group (32)
Men's focus groups	2 per community of 4 per group (32)
Men's focus groups	2 per community of 4 per group (32)

3.4.4 Sampling Method

A nonprobability sampling technique, purposive sampling, as mentioned in Table 2 above, was employed in recruiting the research participants. Purposive sampling helped decide what needed to be known about artisanal and small-scale mining activities and set out to find people who could, were willing and capable of providing the information by virtue of their knowledge of, or experience in, the artisanal and small-scale mining activities (Sharma, 2017; Sibona, Walczak & White Baker, 2020). Purposive sampling was therefore most appropriate as it is "a method of sampling in which the researcher selects subjects who have experience or knowledge of the issue/s being addressed in the research", in the opinion of Oppong (2013, p.203). Using purposive sampling required the categorisation of the research participants in line with ex ante classified criteria established around the research problem (Mujere, 2016) on the effects of artisanal and small-scale mining on women and children.

It should be clarified that the chief of each community was asked to invite men, women and children involved in artisanal and ssmall-scale mining activities in their communities. To avoid any biases, if the chiefs chose to invite participants from their immediate families or only persons known to them, a simple random exercise in the final selection process was made by selecting every third person or group in the line up of those invited by the chiefs. This avoided any biases in the sampling.

3.4.5 Sample Size

The sample size for this research on artisanal and small-scale mining was determined based on available resources, time constraints, and research objectives. While the sample size

was not fixed prior to data collection, it was estimated that approximately 120 individuals (men, women, and children as in Table 2 above) from four mining communities in the Bo and Kono districts (two communities per district) were included. A purposive sampling technique was employed to achieve theoretical saturation, as described by Hennink and Kaiser (2020), who explain it as the point at which enough data has been collected to develop a robust and valid understanding of the research phenomenon. In this study, the focus was on the effects of artisanal and small-scale mining on women and children.

Theoretical saturation is a common practice in purposive samples in qualitative research and is critical for ensuring data validity and evaluating research quality. Whitehead and Whitehead (2016) describe this process as involving simultaneous data collection and review, concluding when additional data no longer contributes new insights to the research problem. The data collection for this research was planned for 24 focus groups, divided into 8 groups each for women and men, and 4 groups each for girls and boys, with 4 individuals per group. Additionally, individual interviews were planned for 8 women, 8 men, 4 girls, and 4 boys, resulting in a total sample size of 120 individuals. The selection of the general population, population of interest, sample frame, sampling method, and sample size was deemed appropriate for studying the impacts of artisanal and small-scale mining, ensuring that the findings would be valid and reliable. Data collection proceeded as planned, with each interview taking an average of 35-45 minutes per participant, as in Table 4.

The number of participanmts was kept relatively small in order to allow for in-depth interviews and discussions on the phenomenon of artisanal and small-scale mining using the limited time and other resources available (Young & Casey, 2019). Such a small sample size

also allowed for exploring deeply the lived experiences of participants on the effects of artisanal and small-scale mining (Basias & Pollalis, 2018).

3.5 Materials/Instrumentation of the Research Tools

3.5.1 Data Collection

Data collection in research is the process of gathering and measuring information on variables of interest to the research topic in an established and systematic way that enables the researcher to answer the research questions, test hypotheses and evaluate the research outcome (Sutton & Austin, 2015). Data collection is important to both quantitative and qualitative research approaches but the tools for collection could differ between the two. While in quantitative approaches, the aim of the data is to establish relationships between variables through mathematical values and statistical methods (Rutberg & Bouikidis, 2018), in qualitative studies the relationships are established using descriptive and textual tools to understand the complexity, detail and context of the research subject (Mohajan, 2018).

The data collected in the research was primary data, which is original data collected directly from the research participants, to answer the research questions and to achieve the research goal (Mohajan, 2018). The research whose purpose is to examine the effects of artisanal and small-scale mining on women and children through their lived experiences, is a qualitative intrinsic, single case study and therefore used qualitative data collection tools such as individual interviews, focus group discussions and direct observations (Kekeya, 2021)

3.5.2 Description of the Data Collected

The data collected was nominal data which constituted the set of values that did not need a natural ordering (Suparji, Nugroho & Martiningsih, 2019). This data is usually textual

and can be derived from translated audio recorded individual interviews, notes from the discussions and interviews or videos taken from focus group discussions (Johnson, Adkins & Chauvin (2020) which can increase the rigour and validity of the research and deal with the criticism that qualitative research is prone to systematic biases. While both audio- and video-recorded interviews could be translated into written text, videos have an added advantage of observing body language and other gestures which audio recordings do not have (Lamey, 2015). In addition, notes were taken of the interviews or discussions. However, if there are no research assistants to support in note-taking, it may be difficult for one facilitator or interviewer to take notes and at the same time conduct the interviews and discussions (Muswazi & Nhamo, 2013). In addition, taking only notes has the risk of omitting valuable information from participants which may not be captured and may be considered a limitation.

3.5.3 Tools for the Data Collection

Three tools were used in the data collection for this qualitative case study research. These were individual interviews, focus group discussions and direct field observations.

3.5.3.1 Individual Interviews

Individual interviews are an effective tool for collecting primary data and information for qualitative research. According to Scheurich (2014) "an interview is used to find out what is in and on someone else's mind, which cannot be directly observable". Millar, Crute & Hargie (2017) further expand that:

> An interview is initiated to achieve one or several objectives, takes place in a particular physical and social setting, and occurs as part of a procedural sequence of events. Further, it focuses on the present, past and future behaviour, beliefs, opinions, attitudes or convictions of the interviewee. (p.2)

Put in another way, interviews are research tools for eliciting thorough information on the effects of artisanal and small-scale mining activities because these effects are not directly noticeable in the women and children participating in the mining activities.

The individual interviews on the lived experiences of artisanal and small-scale mining were unstructured or semi-structured, open-ended questions that did not perceive any theories or previous ideas (Chauhan, 2019), and were carried out with minimum or no organisation. On the appropriateness of interviews as a qualitative data collection tool, Ruslin, Mashuri, Rasak, Alhabsyi & Syam (2022) note that:

> it allows researchers to acquire in-depth information and evidence from interviewees while seriously considering the focus of the study. The second account concerns its flexibility and adaptability. For many qualitative researchers, the semi-structured interview is perceived to enable researchers to track their studies while being flexible and adaptable to ask questions to their interviewees. p.22.

The individual interviews explored the views, experiences, beliefs and/or motivations of individuals on the effects of artisanal and small-scale mining on women and children and provided a 'deeper' understanding of the social phenomena of mining than would be attained from purely quantitative methods, such as responses to questionnaires (Denny & Weckesser, 2022).

3.5.3.2 Focus Group Discussions

Another tried and tested tool in collecting primary data for a qualitative research from the field is focus group discussions. This is a method of data collection in which the researcher, facilitator or moderator has a conversation with the group, normally between 3-6 participants on issues related to the research questions (Barrett & Twycross, 2018), in this case questions

on effects of artisanal and small-scale mining activities on women and children. Participants in the focus group discussions for this research shared common features and conversations with them involved using unstructured, open-ended questions and probing further on the responses. In focus group discussions, the conversations were guided, monitored and recorded either by note-taking, audio- or video-recording (Eaton, 2017; Ranney et al. 2015). In conducting the focus group conversations, it was important to have a relaxed atmosphere, at least in the beginning, with little interference from the facilitator until the conversation aligned with the research questions (Liang, Leung & Cooper, 2018). To facilitate this relaxation, it was good to introduce 'energisers' from time to time by letting participants sing songs, play games or do group exercises they all knew (Nyumba, Wilson, Derrick & Mukherjee, 2018). It was useful to work with pre-existing groups as they were familiar with each other, and it also provided a social context within which decisions were made and ideas formed. Carey & Asbury (2016) advise that these groups could be formal or informal ones and care should be exercised not to have groups where some members suppress the contributions of others such as a mixed focus group of men and women. It was therefore good to ensure the gender homogeneity of the group in order to elevate the equality of contributions to the discussion among participants (Greenwood, Ellmers & Holley, 2014).

The focus group conversations were held at agreed venues that were accessible and convenient to most of the participants to facilitate a productive discussion free from fear or intimidation, conducive to trust and conversations as well as being amply comfortable and relaxed (Masadeh, 2012). For the focus group conversations on effects of artisanal and small-scale mining on women and children, the seating arrangement was circular so that every participant could see the others.

Disagreements, conflicts or obedience arose during the discussions. These were resolved by listening to each viewpoint and moderating the discussions to minimise any distress to participants and ensuring that the discussions of sensitive issues were kept at an appropriate level by not avoiding them or pushing them too far, and respectfully moving on to a different topic for discussion (Sim & Waterfield, 2019). Consensus building with the group was needed to resolve any disagreements, conflicts or obedience.

The duration of the focus group discussions was about one hour as shown in Table 4, so as to avoid fatigue (Nyumba, Wilson, Derrick & Mukherjee, 2018) and also being mindful that, time is of great essence in such rural settings, as participants had many other chores to attend to at home, on the farm or at the mines. As children were involved in the group discussions, Gibson (2012) suggests a shorter duration for them as they tend to have shorter attention spans.

As an inducement for participating in the focus group discussions and for staying between 1-2 hours, some refreshment was to be provided (Masadeh, 2012). Culturally in Sierra Leone, when people are brought together to undertake some communal activities, they are normally provided with what is termed ‘water’. However, participants agreed to rather take a cash stipend to buy the drink of their choice. The number of groups and individuals interviewed, their age brackets, gender and location by community is provided in Table 3 below.

Table 3
List of Participants by Community and Gender

Category	Community	Gender	Age	Number of Participants
Group	Golluu	Male	15-18	**4**
		Male	24-60	**4**
		Male	30-55	**4**
		Female	24-56	**4**
		Female	28-60	**4**
	Small Sefadu	Male	13-15	**4**
		Female	14-16	**4**
		Male	30-65	**4**
		Male	28-67	**4**
		Female	32-54	**4**
		Female	27-54	**4**
	Tombodu	Male	10-15	**4**
		Female	11-16	**4**
		Male	50-68	**4**
		Male	30-48	**4**
		Female	22-52	**4**
		Female	27-54	**4**
Individual	Golluu	Female	45	**1**
		Male	17	**1**
		Male	52	**1**
		Male	52	**1**
	Small Sefadu	Male	15	**1**
		Female	14	**1**
		Male	42	**1**
		Male	62	**1**
		Female	42	**1**
		Female	36	**1**
	Tombodu	Male	17	**1**
		Male	35	**1**
		Male	28	**1**
		Female	32	**1**
		Female	17	**1**

Table 4

Duration of Interviews and Focus Group Discussions

District	Community	Group/Individual	Duration
Kono	Small Sefadu	Male Individual A	50
		Male Individual B	43
		Female Individual A	46
		Female Individual B	52
		Male Child Individual	38
		Female Child Individual	31
		Male Group A	62
		Male Group B	59
		Female Group A	65
		Female Group B	67
		Male Children's Group	42
		Female Children's Group	47
	Tombodu	Male Individual A	51
		Male Individual B	63
		Female Individual A	57
		Male Child Individual	38
		Female Child Individual	41
		Male Group A	68
		Male Group B	63
		Female Group A	70
		Female Group B	66
		Male Children's Group	45
		Female Children's Group	47
Bo	Golluu	Male Individual A	58
		Male Individual B	64
		Female Individual A	72
		Male Child Individual	36
		Male Group A	63
		Male Group B	67
		Female Group A	71
		Male Children's Group	50

3.5.3.3 Direct Observation of the Artisanal and Small-Scale Mining Phenomenon

Observation as a data collection tool may be described as a way to gather data by noting physical characteristics of a phenomenon in their natural setting (Yin, 2014). This was an overt observation of the physical features caused by artisanal and small-scale mining to avoid any suspicions by community members of not knowing what the researcher was observing. Accompanied by some community members, the observations were used to collect information and data on the field using the Bedimo-Rung Assessment Tools for Direct Observation (BRAT-DO) tool (Alwah et al., 2020). This tool observed the features, conditions, access and safety

associated with items of the phenomenon to be observed (Stone & Roberts, 2020). This involved seeing who was participating in artisanal and small-scale mining in the communities, the type of tools being used for the excavation, which locations the mining activities were being caried out, where they were carried out and how they degrade land and pollute water resources.

Harrison, Birks, Franklin & Mills (2017) note that evidence from observations is often useful in providing additional information on the phenomenon being studied in this case the phenomenon of artisanal and small-scale mining. The observations were made more meaningful by taking photos and videos of the phenomenon and its characteristics being observed (Johnson, Adkins & Chauvin, 2020). However, in some cultural settings permission needs to be granted to take such photos. When photos are allowed to be taken, it is always recommended that more than one person takes them so that the photos can be compared.

3.6 Data Coding of Interviews, Focus Group Discussions and Observations

Coding is the operation of identifying segments of meaning in the data and labelling them with a code, which can be defined. Saldaña (2021, p.3) suggests that "a code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data". The data for this research included interview and focus group discussion transcripts, field notes and images from the direct observations on artisanal and small-scale mining activities in the communities.

Saldaña. (2021) further notes that:

> a code is a researcher-generated construct that symbolises and thus attributes interpreted meaning to each individual datum for later purposes of pattern detection, categorization, theory building, and other analytic processes. Just as a title represents and captures a book, film, or poem's primary content and essence, so does a code represent and capture a datum's primary content and essence. (p.4)

The analysis of this research employed a first cycle coding made of full pages of the transcribed text. A second cycle coding process followed the first with longer passages or even the reconfiguration of the first cycle codes.

As Clark & Veale (2018) suggest, the coding was a critical link between the data collected and an explanation of their meanings. Each unit of data was assigned a separate and unique code. Some codes repeated themselves and this was because in the research, there was a look for repetitive patterns and consistencies on the effects of artisanal and small-scale mining activities on women and children. The codes were then organized and similar codes grouped together to form categories for those codes that had similar characteristics (Williams & Moser, 2019). From the categories derived from the codes, further grouping was done to identify the themes emerging from the individual interviews and focus group discussions.

3.7 Data Triangulation

Triangulation as defined by Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville (2014, p.545) is "a qualitative research strategy to test validity through the convergence of information from different sources". These sources can contain a variety of methodologies or data, with the purpose of considering a single point from at least three distinct and autonomous sources to corroborate the topic under research, in this case the effects of artisanal and small-scale mining on women and children. Lemon & Hayes (2020) note that the goal of triangulation is to detect inconsistencies or breaks in emergent patterns in the findings that can lead to a deeper knowledge of the phenomenon; and further explain that inconsistencies are a strength, not a weakness, and the ultimate goal is to remove systemic bias through triangulation (Lemon & Hayes, 2020). In this case study research on the effects of artisanal and small-scale mining

on women and children, each of the data collected (individual interviews, focus group discussions and direct observations) were used as the evidence for the research.

However, Rahi (2017) suggests that sometimes when a researcher is used to any one of the sources, they may tend to use only that source to build the evidence. The use of a single data source is however not recommended for the case study research into complex phenomena such as artisanal and small-scale mining. A big strength of the case study method is the opportunity to use the different sources of evidence collected (Fusch & Ness, 2015). The use of many sources of evidence allows the researcher to investigate broader issues such as attitudes, behaviour and more importantly developing converging lines of inquiry. Hence the findings or conclusions of a case study research could be more accurate and convincing when based on several sources of information that corroborate each other.

Farquhar & Michels (2016) identify the triangulation of data sources (data triangulation) as one of four types of triangulations in a case study research. Data triangulation encourages the collection of data from multiple sources that are aimed at corroborating the phenomenon of artisanal and small-scale mining and addresses the potential problem of construct validity because the multiple sources of evidence provide multiple information of the same phenomenon, enhancing research results (Fusch, Fusch & Ness, 2018) and enabling the researcher to saturate the data (Fusch & Ness, 2015). However, as Kees, Berry, Burton & Sheehan (2017) point out, collecting data from multiple sources is more expensive, regarding time and money than from one source. In addition, the researcher needs to be trained on the collection techniques of all the multiple sources.

The reliability and accuracy of any qualitative research findings largely depend on the sources of data and the tools used for the data collection. Data from individual interviews, focus

group discussions and observations collected individually have proven to be effective sources and when combined and triangulated produce even better information that can be analysed and lead to more reliable conclusions.

3.8 Study Procedures and Ethical Assurances

To initiate the research, the research assistants and researcher sent a gatekeeper's letter to the chiefs of the communities where the research was to be conducted (Singh & Wassenaar, 2016). The letter informed the chiefs about the purpose and significance of the research and asked for their assistance and support in identifying already existing men, women, boys and girls' groups and individuals that were participating in artisanal and small-scale mining activities. The research team then followed up to the gatekeepers to verbally explain the process of the data collection. This was the first stage of asking for and receiving consent for the data collection (Rapp, Moody & Stewart, 2018) at community level.

A day was then agreed for the research assistants and researcher to return to meet the groups and individuals. On that day, the research team met with the women, men and children's groups and individuals and the chiefs explained the purpose of visit to the participants. The purpose and significance and potential benefits and harm of the research was explained to the participants by the research team. The participants were then encouraged to ask questions for clarifications and expatiation, and to respond if they were interested in voluntarily participating in the data collection (Miller et al. 2022). They were informed that they had the right to withdraw from the interviews and group discussions at any time before or during the process or even withdraw their contributions after the interviews and discussions were held.

Before each individual interview or focus group discussions were held, the purpose, significance, potential benefits and any envisaged harm was again explained to the participants

and stress equally made of their right to withdraw as explained earlier to ensure that they fully understood and if they had questions which they could not ask in the earlier community meetings (Beardsley, Martinez Moreno, Vujovic, Santos & Hernández-Leo, 2020). The participants were again assured of the confidentiality and privacy of the information to be collected such as not identifying the responses by name or location as well as storing the information in password-protected computer files.

After reading, interpreting and explaining the content of the written consent forms in the local language, the adult participants were asked to sign or thumbprint the informed consent forms and endorsed by a witness of their choice before the interviews and discussions begun, and legal guardians of the children were asked to sign the guardian informed consent for the children. As a sign of respect, agreement was also reached with the children to do the interviews or group discussions (Borovecki, Mlinaric, Horvat & Supak Smolcic, 2018).

In qualitative research, the researcher is also a subject embedded in the society under study, performing the research and at the same time suffering from its influence and therefore confronted with ethical dilemmas which needs to be expatiated further on how it was dealt with. As most social research is carried out with human participants the context has an influence which frequently requires that ethical rules and norms are adapted to the particular situation, sometimes leading to difficulties (Daniel, 2019). Therefore, any research study must ensure the protection of human participants by adhering to the relevant ethical principles. This is because a qualitative study is more in-depth than a quantitative one, and ethical issues are particularly pertinent. When conducting in-person interviews with a vulnerable set of participants, ethical concerns become increasingly prominent (Arifin, 2018). During the interview, they could become agitated when expressing their emotions. Thus, researchers ought not to limit the

ethical standards of their studies to respecting norms and directives or having approval from an ethics committee alone (Taquette & Borges da Matta Souza, 2022).

This is why in the data collection process for this research which involved human participants in interviews and focus group discussions, the ethical principles of informed consent and voluntary participation, anonymity and confidentiality had to be observed in order to protect their privacy (Hoft, 2021).

With regard to privacy and confidentiality, which are the most known ones as far as ethical consideration in research is concerned, and participants' privacy were ensured by not identifying personal information by name, address, date of birth and location in the interview tools or focus group discussions forms. This ensured that the information was both anonymous while also guaranteeing that the data and information that was finally written out from the note-taking was kept private except for the researcher and the research assistants.

These two aspects of handling the data constitute the confidentiality condition (Saunders, Kitzinger & Kitzinger, 2015) and went beyond simply anonymisation of the data and information. The interview setting's privacy and confidentiality were properly maintained throughout the interviews, discussions, data processing, and distribution of the results. The individual and focus group discussions were held in places where others who were not part of the process could not hear the discussions or eavesdrop.

However, Saunders, Kitzinger & Kitzinger (2015) argue that anonymity may never be achieved in research practice as either the researcher or research assistants or even family members will know the participants and sometimes even meet them personally and that privacy may also never be achieved in practice because at least one person will have access to the information or data collected from research participants. Tolich (2016) notes that the challenge

with qualitative research is that by using direct quotes from participants, members of the community in which the participants reside can make educated guesses about who said what.

In the focus group discussions, an additional measure to ensure that the information and data collected remained confidential was to agree with the participants not to divulge any information they heard from other participants. These were part of the 'ground rules' agreed with the focus groups before every discussion. This is because, in the experience of Sim & Waterfield (2019), in focus group discussions participants express their opinions in public or in the group, and in such situations, what will be regarded as private information on artisanal and small-scale mining is not easy to predict as it depends on the reaction or discretion of the group members. Therefore, group members were constantly reminded to respect the views of others while keeping the information heard during the discussions only to themselves as part of the 'ground rules' and as Sim & Waterfield (2019) have also noted, this is difficult to guarantee as the researcher has no control over what group members may communicate outside the group.

Wa-Mbaleka (2019) contends that even with signed non-disclosure agreements, the researcher cannot guarantee complete confidentiality from and for each participant in focus group discussions. Qualitative researchers are expected to uphold this ethical principle to the highest standard, even in the absence of a prescriptive method. Sim & Waterfield (2019) further stress that failure to maintain confidentiality in a qualitative research can have disastrous consequences for the participants, harm the study's credibility (Wa-Mbaleka, 2020), or even result in legal action.

In addition to these measures to ensure confidentiality of data and information that was collected, at the beginning of the individual interviews and focus group discussion, participants

were assured that all necessary means, to the extent possible, will be made to ensure that whatever is shared will be kept confidential and anonymous (Sim & Waterfield, 2019) by the researcher and research assistants through protected storage of the information.

The steps employed in getting consent from the research participants was for them to freely and voluntarily grant agreement for the data collection. This meant they needed to understand the nature of the request to them, and the parties concerned must be able to consent. This further means that in order to take part in a research study, participants must understand the material provided, be well-informed about the research, and have the ability to make their own decisions. This implies that consenting to participate in a research study requires participants to be aware of the research, comprehend the information given, and be able to make independent judgments. The making of independent decisions on whether to participate in a research data collection or not is what Arifin (2018) refers to as voluntary participation.

Consent was of central importance in the data and information collected from the individual interviews and focus group discussions as this is the issue in which participants have the most vulnerability (Sim & Waterfield, 2019) because they are persuaded to give out intimate views on the phenomenon of artisanal and small-scale mining being studied. Consent is important as it also seeks to legitimize the researcher's actions and according to Walker (2018), consent is a form of communication whereby a conduct that was previously prohibited for a certain reason is now no longer prohibited for that reason. The consent sought was for the participants to agree to volunteer the information with the tools designed to collect the information.

The researcher obtained informed consent for adult participants and informed assent for children before allowing someone to participate in the interviews. Consent was always

given in writing before the start of the interviews and discussions. The researcher drafted the informed consent or assent forms which were reviewed and approved by ethics committee. The consent forms were in written form and signed by each participant and witnessed by another community member of their choice.

There was always debriefing to the individuals and focus groups after every discussion. This was a summary of the discussions and responses made to the open-ended questions which enabled the participants the opportunity to react to the debrief as well as allow the participants to address any issues of concern to them (Sim & Waterfield, 2019). In some instances, participants added more information that they thought were left out by the research assistants, which were subsequently included in the notes taken.

Even though most qualitative studies do not involve procedures of direct risk to participants, it may have the potential to cause harm to the participants' physical, psychic, moral or cultural dimensions during any of the phases, from experience (Taquette & Borges da Matta Souza, 2022).

There was no direct harm to the participants by this research as they were not human objects in the conduct of the research but merely providing information on their lived experiences in participating in the activities of artisanal and small-scale mining in their communities (John, et al., 2016). However, harm could be caused if the information shared by the participants was leaked to the whole community or sections of the community. For instance, a woman or child sharing lived experiences in which the husband or father is said to be taking away their earnings from the artisanal and small-scale mining activities may be physically or psychologically abused if the information came to the knowledge of the husband or father. Codio (2012) describes such situations as 'misclosures' where information is unintentionally

leaked out to people who should not hear it and this could cause harm to the participants who gave that information. To minimise the possibility of this occurring, participants were prevailed upon to keep all information shared during the discussions confidential.

The researcher sat in the introductions and explanations of the ethical issues to the groups and individuals by the research assistants to ensure that the right ethical procedures were explained to the participants and to help answer any questions on the research.

In addition, the researcher was actively involved in the process itself and considered that he was part of the social issue of the effects of artisanal and small-scale mining on women and children in the selected communities that were being studied. This self-awareness and reflexivity, as posited by Palaganas & Estacio (2018) as a process gave the researcher an introspection of the position of subjectivity in the research and also made the researcher to examine, recognize and understand his own background, upbringing, feminist standpoint, assumptions and position regarding the effects of artisanal and small-scale mining activities on women and children.

The researcher's personal bias in this research was avoided at the various stages during the study design, the population sample selection, the interviewing and the group discussions and any tendencies which prevented unprejudiced considerations of the research process. Bias in research, according to Sijtsma (2016) happens when a methodical error is deliberately introduced into the sampling or testing by choosing or supporting one outcome over others. Researcher bias could occur at any stage of the research process from the design to the publication stages, and the researcher was quite conscious of this.

The researcher tried to avoid a study design bias by clearly defining the objectives of the study and standardising the data collection tools. Selecting the study sample population

using a tested sampling method such as purposive sampling and employing different people to identify the communities and participants for the data collection also eliminated the selection bias (Sijtsma, 2016). The selection process involved participants from the same general population and communities in which artisanal and small-scale mining takes place and the outcome of the selection process was unknown at the time of enrolment which made it less prone to bias (Nohr & Liew, 2018).

During the interview process, there was no systematic difference between how information was solicited, recorded, or interpreted between the groups or individuals. The interviews and focus group discussions were blinded to the outcome and the same format was used for the individual interviews and similarly for the focus group discussions, which helped to avoid any interviewer bias (Rosenthal, 2016).

3.9 Data Collection and Analysis

This qualitative research method used a case study methodology and collected textual data from the research participants using qualitative data collection tools such as open-ended individual interviews, focus group discussions and direct field observations (Barrett & Twycross, 2018). These tools were considered appropriate for the data collection because they provide the researcher with deep and rich insights into the phenomenon of artisanal and small-scale mining and how it affects women and children. Also, these tools sought to probe into the natural settings in which these mining activities occur using the lived experiences and perspectives (Kyngäs, 2020) of the women and children affected by the artisanal and small-scale mining activities.

These three data collection tools were used to collect the data from the field (focus group discussions, individual interviews and field observations). These tools were appropriate

for qualitative studies as the data collected was nominal and constitute the set of values that do not need a natural ordering (Suparji, Nugroho & Martiningsih, 2019). The textual data was derived from notes taken from individual interviews and the focus group discussions (Johnson, Adkins & Chauvin, 2020).

The individual interviews explored the views, experiences, beliefs and/or motivations of individuals on the effects of artisanal and small-scale mining on women and children. The interviews provided a 'deeper' understanding of social phenomena of artisanal and small-scale mining than would be obtained from purely quantitative methods, such as responses to questionnaires (Denny & Weckesser, 2022).

The semi-structured individual interviews approach was used and this demonstrated consistency in the questioning and probing, was tested and re-tested with participants and the outcomes were similar and therefore demonstrated reliability. In addition, the interviews also demonstrated content validity as it represented the variety of issues and measured the effects of artisanal and small-scale mining on women and children (Fisher, Matthews & Gibbons, 2016), consistent with the research questions.

Focus Group Discussions were held in which the researcher or research assistant had a conversation with the group, normally 4 participants, on issues related to the research questions (Barrett & Twycross, 2018), in this case, questions on the effects of artisanal and small-scale mining activities on women and children. Participants in the focus group discussions shared common features and conversations with them normally involved the use of unstructured, open-ended questions and probing further on the responses. In the focus group discussions, the conversations were guided, monitored and recorded through note-taking (Eaton, 2017; Ranney et al. 2015). Information from focus group discussions is reliable because the discussions are

open and critical with the same moderators, and this generates stability, equivalence and internal consistency. In addition, the emergence of the substantively similar opinion on the effects of artisanal and small-scale mining on women and children in the several focus groups, especially as they were geographically distant, tended to establish content validity because the focus group participants discussed it directly (Nyumba, Wilson, Derrick & Mukherjee, 2018).

In order to collect additional data, field observations were also carried out, wherein the physical attributes of the phenomenon of artisanal and small-scale mining in its natural environment were noted (Yin, 2014). To allay community members' concerns that the researcher was not aware of what they were seeing, this observation was made explicitly. The observations were made in order to gather data and information about the field. They included observing who was engaged in small-scale and artisanal mining in the communities, what minerals were being mined, where the mining activities were being conducted, how they were causing land degradation and water resource pollution, and what kind of tools were being used for the excavation. Rahi (2017) notes that evidence from observations is often useful in providing additional information on the phenomenon being studied, in this case the phenomenon of artisanal and small-scale mining. The field observations were made more meaningful by taking photos and videos of the mining phenomenon and its characteristics observed (Johnson, Adkins & Chauvin, 2020). The field observations were considered reliable because it was the same instrument used in observing the landscape and other physical characteristics caused by the artisanal and small-scale mining activities and by the same person. This contributed to the construct validity which have been described and predicted by theories on artisanal and small-scale mining and the destruction of the physical environment (Baskarada, 2014).

Two research assistants who speak and write English as well as speak the local languages were identified and recruited for each district of study (Deane & Stevano, 2016; Lu & Gatua, 2014; Stevano & Deane, 2019). These comprised 1 male and 1 female for each community. The research assistants were taken through the research purpose and significance as well as an understanding of the data collection tools to be used. Some practice interviews and focus group discussions were made with the research assistants for them to get acquainted with the use of the tools (Deane & Stevano, 2016).

Two communities where artisanal and small-scale mining takes place were identified in each of the study districts. One district, Moyamba, which was originally earmarked for the study had to be changed because only mechanised large-scale mining takes place there and was replaced by Bo district where artisanal and small-scale mining is done. The communities selected for the data collection had to be accessible, had to agree for the research to take place and had to have women, men, boys and girls involved in artisanal and small-scale mining activities directly or indirectly (Jameel, Shaheen & Majid, 2018), in line with the sampling frame for the research.

Along with a research assistant, the researcher visited each community using the gatekeeper letter to meet with the chief. There, they explained the purpose of the study, requested permission to conduct it, and requested help in identifying existing groups of women, men, boys, and girls involved in artisanal and small-scale mining as well as individual women, men, boys, and girls involved in these activities (McFadyen & Rankin, 2016). The gatekeeper also proposed a day for the research team to come back and meet the research participants, explain the research purpose and process and to do the data collection. The research team further explained that they needed 2 groups each of the women, men, boys and girls for the

focus group discussions and 2 individuals each for the individual interviews and added that for each of the focus group discussions, they did not need more than 4 persons per group. This gave a total of 30 participants for each community. The chief was encouraged not to select only relatives or people he knew for participation in the interviews and focus group discussions.

On the appointed days, the research team got to the communities at 9 am, met the participants together with the gatekeeper, explained the research purpose and process, asked if any participant needed any further clarification or had questions to ask. Further clarifications and questions from the participants were answered.

The research team then met the groups separately. The researcher did the discussions and the interviews for the boys and girls; the male research assistant did for the men's groups and individuals while the female research assistant did for the women's groups and individuals. It should be clarified that in order to avoid selection bias by the gatekeeper, who is normally the chief of the community, a simple random sampling was done by selecting every other group and individual from the groups and individuals invited by the gatekeeper.

Before each discussion and interview, the research team explained the adult informed consent, guardian informed consent and these were voluntarily consented to and signed prior to the discussions and interviews. The research team also explained that any of them had the right to withdraw their participation during or after the discussions and interviews. The team stressed the commitment to confidentiality, anonymity. The basic principles and processes of focus group discussions and open-ended individual interviews were followed with the participants.

Initially, the researcher proposed to use women co-facilitators for the women focus group discussions but since the team had female research assistants who spoke the local

language and who had been working in these communities previously, there was no need for additional co-facilitators.

The team also explained to each group and individual that some refreshments would be bought for the participants after the discussions and interviews, in keeping with the cultural expectations of the participants, but the participants preferred the cash equivalent instead of the refreshments and the team complied with their wishes. The team also gave the gatekeeper and his elders 50,000 leones (about US$3.5). Each participant also benefited from 10,000 leones for their time (about US$0.70) instead of the soft drink.

For the focus group discussions, prepared broad questions around the research questions were formulated to guide the discussions and probing to elicit the responses from the groups. At preparation, the researcher thought the team could take detailed notes as well as make audio recordings, but this had to be altered to taking only detailed notes for two reasons. First the participants were not comfortable for the team to do the audio recordings; secondly, since the researcher was going to do the transcription of the recordings, it was pointless recording in the local language since the researcher did not speak it. Instead, the team had notebooks for each research assistant and the researcher to do detailed notes of the discussions and interviews. In addition to the focus group discussions for the children, the team asked them to draw what interested them most in their involvement in the mining activities and what they did not like about their involvement. Each focus group discussion took about one hour for the adult groups and a maximum of 45 minutes for the children's groups, as in Table 4.

The research team also asked each group to priotise two things about artisanal and small-scale mining that positively benefited them or negatively affected them and traditional beliefs, cultural practces that affected them.

For the open-ended individual interviews, the team was again guided by the research questions to do the probing. During each interview, the team paused after some time to find out if the participants had any questions up to that point. Again, detailed notes were taken for each individual. The time taken for the individual interviews also lasted for about an hour each for the adults and about 45 minutes for the children, as indicated in Table 4.

For the field observations, the researcher was accompanied by one man, one woman, one boy and one girl to have a transect walk around the mining sites in each research community to see the physical effects of the artisanal and small-scale mining activities. The participants also explained to the researcher how those physical features came about. The researcher was allowed to take videos and photos of the pits, dugouts and tools at locations where artisanal and small-scale mining activities take place.

After the data collection from each community, the research team met to discuss what went well, what could be done differently for the next community and what was emerging from the focus group discussions and individual interviews. After the third community, the research team realised that the data collected was not different from the previous data and information from the first two communities and agreed that the saturation point had been reached and therefore did not need to proceed to the fourth community. The fourth community was informed of the decision not to visit it and the research team apologised for any inconvenience caused. The team therefore ended the data collection at this point.

The researcher took away all the notebooks into which the detailed notes were written for each group and individual and entered all the notes, group by group, and individual by individual, into a computer anonymously, only referring to either women group A or B; or male individual or female individual to protect the identity of the groups and individuals in line with

the ethical guidance. The researcher then grouped the notes by community and by district, saved the files and protected them with passwords.

As this was the researcher's first academic research, he did not want to use any software to do the coding of the data. He had to therefore do thorough reading of the 42 individual scripts and to do the coding. The coding considered key information emerging from the scripts such as who are mostly involved in artisanal and small-scale mining and why; differentiated benefits from artisanal and small-scale mining, differentiated impacts on those involved; issues related to gender, poverty, education, food security etc and any interesting responses that came up. The researcher then counted recurring codes for each group and individual to tally their frequencies. From the codes some themes seemed to be emerging relating to perceptions and experiences by the different groups; discrimination against women and children; social effects of artisanal and small-scale mining; social norms and traditional belief systems in artisanal and small-scale mining; experience of vulnerability by women and children; ways in which social norms and gendered institutions work against women and children in artisanal and small-scale mining activities.

The power dynamics between the researcher and the participants was a significant consideration, given the researcher's external status and the hierarchical and patriarchal nature of the artisanal and small-scale mining communities. To deal with these dynamics throughout the research process, it was important for the researcher to be aware of how we contribute to the production of meanings and lived experiences. It is a fact that one cannot conduct research while remaining "outside of" their subject of study. Palaganas, Sanchez, Molintas & Caricativo (2017) note that by acknowledging the reflective and relational aspects of personal and methodological issues, researchers demonstrate respect for themselves and all other individuals

associated with the research endeavour. It was also important for the researcher to balance these dynamics and mitigate potential distrust or reluctance from the participants, who might have viewed the researcher as an authority figure or an outsider. Wa-Mbaleka (2019, p126) stresses that the fact that "qualitative researchers are guests in the private spaces of the world" is something that the researcher must never forget. They should have proper manners and adhere to a strong code of ethics. Some of the ethics adopted by the researcher was to buy and eat food from each community and to also drink the water in each community from safe sources such as boreholes.

The concept of positionality was also critically examined throughout the research process. The researcher navigated the tension between being an insider and an outsider. As an outsider, the researcher brought an objective perspective and minimised biases that could arise from familiarity with the local context. However, this outsider status also posed challenges in building trust and rapport with participants. To mitigate these issues, the researcher engaged with local leaders, including the chief of the community, to facilitate introductions and endorsements, enhancing the researcher's acceptance within the community. This collaboration helped bridge the gap between the researcher and the participants, fostering a more open and honest dialogue. It should also be mentioned that the researcher was not entirely a stranger in the research communities as he had visited and interacted with the communities in his previous job in the country. The researcher maintained reflexivity throughout the study, continually reflecting on his positionality and its impact on the research process and outcomes.

The researcher employed a participatory approach, ensuring that the participants felt their voices were valued and their experiences respected. By actively listening, demonstrating

empathy, and ensuring confidentiality, the researcher aimed to create a safe and respectful environment for participants to share their experiences and views candidly.

These ethical considerations were pivotal in ensuring the research was conducted responsibly and ethically, acknowledging the vulnerability of the participants and the sensitive nature of the data collected. In addressing the ethical considerations surrounding data storage and management, this study adhered to stringent protocols to ensure the confidentiality, integrity, and security of the collected data. All data were anonymised to protect the identities of the participants, particularly given the sensitive nature of the issues discussed, such as workplace discrimination, child labour, and sexual exploitation. The anonymised data was securely stored on encrypted digital devices, with access restricted to only the researcher. The hard copies of the consent forms and the field notes from the interviews and discussions were kept in a locked cabinet with no access to anyone other than the researcher. This personal information will be destroyed in accordance with the Unicaf University in Zambia research governance procedures. These measures were in line with the guidelines provided by Polit and Beck (2014) on ensuring the quality and trustworthiness of qualitative research.

3.9.1 Data and Information from Data Collection

The current study aims to examine the effects of artisanal and small-scale mining on women and children in Bo and Kono districts in the Republic of Sierra Leone. For this purpose, thematic analysis was conducted that aimed to accomplish the research goals and objectives. Several open-ended questions were asked each participant to comprehend their viewpoints. The gathered data was subsequently subjected to a manual thematic analysis in order to reach significant conclusions. Descriptive qualitative research techniques like thematic analysis can be used in a variety of existing theories and research issues. Using this technique, notions that

are represented in a data set can be found, examined, categorised, and interpreted. Thematic analysis is seen as a bridge for facilitating communication between researchers using various research methodologies (Nowell, Norris, White & Moules, 2017) and research participants. The present chapter highlights the process and the results of thematic analysis as this process involves several steps including familiarising with the data, initial coding, searching for themes, reviewing of themes and developing a write up.

3.9.2 Familiarising with the Data

In this step, the researcher reads and re-reads the data to familiarise with the data. At this point, the data is collated for easy study and interpretation. This stage is crucial because it enables the researcher to narrow the replies so that they are consistent with the relevant research framework or topics. To do this, the researcher carefully evaluates the data to create an overall view of it. The researcher must have a thorough understanding of the data to assist with the process of acquiring the preliminary results (Castleberry & Nolen, 2018).

3.9.3 Generation of Initial Codes

After thoroughly familiarising with the data gathered, the researcher attempts to decipher the initial codes from the transcript in this step. To do this, each answer to a specific subject is carefully studied, the interesting and distinctive ideas are colour-coded, and finally, initial codes are established for each and every question the interviewer presents (Maguire & Delahunt, 2017). A total of 70 codes were generated for this given circumstance after carefully analysing the data. However, it is crucial to keep in mind that not all transcript-related data was incorporated into the initial codes.

3.9.4 Reviewing the Themes

In this step, the themes were analysed and assessed in the context of the current study. The researcher evaluated each developed theme in light of the proposed study objectives. Each of the themes generated in the preceding steps was broken down into five themes by the researcher, who then provided additional sub-themes to meet the research requirements. As a result, the five themes that were proposed in line with the research objectives in this phase of the investigation included a number of sub-themes. In this segment, the codes were no longer coloured.

3.9.5 Discussion on the Methods and Methodology

The research utilised qualitative methods, specifically individual interviews, focus group discussions, and direct observations, to gather primary data on the effects of artisanal and small-scale mining on women and children. Individual interviews, employing unstructured or semi-structured open-ended questions, allowed for in-depth exploration of participants' experiences, perspectives, impressions and beliefs. Focus group discussions, consisting of four participants, provided a relaxed environment to facilitate open conversation and consensus building, ensuring diverse viewpoints were considered. Direct observations used the Bedimo-Rung Assessment Tools for Direct Observation (BRAT-DO) to gather data on the physical characteristics of artisanal and small-scale mining activities. The data collected was nominal, primarily textual, and derived from transcribed detailed notes taken from the interviews, focus group discussions, and videos and photos, enhancing research validity by observing non-verbal cues. Triangulation of data from these multiple sources ensured the research's reliability and validity by corroborating findings, addressing potential biases, and providing a comprehensive understanding of artisanal and small-scale mining's impact on the target population. The

research team, including local research assistants, engaged with community members to facilitate data collection, ensuring cultural sensitivity and participant comfort. Thematic analysis was conducted manually to identify recurring codes and emerging themes, revealing insights into social norms, gender discrimination, and the differentiated impacts of artisanal and small-scale mining on women and children.

3.10 SUMMARY

This chapter sought to look deeply into the methods, procedures, or approaches used in gathering information or supporting documentation for analysis in an effort to learn new things or advance understanding (Walliman, 2021) of the effects of artisanal and small-scale gold and diamond mining on women and children in Kono and Bo districts of the Republic of Sierra Leone.

The research method considered the explanatory qualitative approach as best suited for this research into the lived experiences (Collins & Stockton, 2018) of the men, women and children involved in artisanal and small-scale mining in three communities in both districts. This is because the study of the phenomenon of artisanal and small-scale mining activities does not lend itself to statistical tests or co-variation of variables but seeks to answer questions such as why, how, who and where with regard to artisanal and small-scale mining activities.

The research also used the single-type case study design as it helped to explore the distinctiveness, complexity and indepth experiences (Valenzuela, 2018) of the men, women and children into mining using semi-structured or unstructured individual interviews and focus group discussions of four members in each group and direct field observations, which yielded consistent and rich experiences of the negative and positive effects for women and children in artisanal and small-scale mining.

The research used purposive sampling technique (Rai & Thapa, 2015) to arrive at the participants for the research so that only men, women and children involved in artisanal and small-scale mining took part in the discussions. Attention was given to ensure that there was no bias in the sampling in order to arrive at valid and reliable results. The sample size was 83, small but adequate enough to produce the desired information that was needed for the data analysis.

The two districts of Kono and Bo were chosen because they are popular for artisanal and small-scale gold and diamond mining, have some similarities in the ethnic composition but also have differences in how the artisanal and small-scale mining activities are carried out. The populations of both districts are predominantly subsistence farmers but artisanal and small-scale mining is a major activity that complements the agricultural activities.

The data collection was done in three communities instead of the planned four communities because no further information was new or added value to the data and information already collected after the third community, hence the saturation point was reached and there was no need to continue in the fourth community.

Ethical considerations were carefully considered during the data collection, storage, processing and management. These ethical assurances included privacy and confidentiality, voluntary participation and informed consent or assent (Kennedy, Huxtable, Birchley, Ives & Craddock, 2021). The documents for the data collection did not have any names or locations indicated on them and the coding and storage of the data was stored electronically on computer and protected by a password and the hard copies of the consent forms and interview notes were stored in a locker accessible by only the researcher.

The data from the focus group discussions, individual interviews and field observations were triangulated to determine the similarities or differences in the responses from the participants (Baker, Dewasiri, Koralalage & Azeez, 2019). The triangulation strengthened the dependability, reliability and validity of the analysis and research results.

The transcripts were coded and themes identified for analysis. A manual coding was done on the data without the use of any softwares and the emerging results showed some consistency in the negative effects and benefits that women and children in artisanal and small-scale mining experience.

CHAPTER 4: FINDINGS

4.1 Introduction

Focus group discussions, individual interviews and direct observations were used to collect the primary data from the field in three communities in Bo and Kono districts. It was intended to conduct the study in four communities – two in each district – but after the third community, there were no responses that added any additional value to the information being collected, hence the saturation point had reached and the interviews were therefore stopped.

All participants invited for the discussions and interviews turned up and there was therefore a 100% response rate. In all, the study interviewed 83 participants,as in Table 3. The focus group discussions comprised of 3 male children's groups of 4 each aged between 10 and 18 years, 2 female children's groups of 4 each aged between 11 and 16 years, 6 adult male groups of 4 each aged between 24 and 68 years, and 6 adult female groups of 4 each aged between 22 and 60 years. For the individual interviews, 3 male children aged between 15 and 17 years were interviewed, 2 female children aged between 14 and 17 years, 4 adult females aged between 32 and 45 years and, 6 adult male aged between 28 and 68 years.

All the research participants were involved in artisanal and small-scale mining activities for at least a year and are residents of the research communities. The populations of the research communities are generally subsistence farmers who complement their livelihoods with income from the artisanal and small-scale mining and other activities. Some of the women of these communities also undertake petty trade as an income-generating activity where possible, and most of the children are in school. The population of the communities is made up of Christians, Muslims and traditional worshippers. Men of the traditional worshippers and Muslim religion sometimes marry more than one wife and often have a lot of children. A large family size is

often seen as a prestige symbol and also provides a big pool of labour for the agricultural or mining activities.

4.2 Trustworthiness of the Data

Trustworthiness refers to the rigour of the data or the degree of confidence in the data, its interpretation or the methods used to ensure the quality of the research (Polit & Beck, 2014). Cope (2014) adds that the usefulness and integrity of the findings are dependent on the trustworthiness or truth value of the qualitative research and the transparency of the study's conduct. In this study, the trustworthiness of the data is demonstrated by the information on the subject which has been obtained through the deliberate sampling of the participants. The trustworthiness of the data for this study was further strengthened by the procedures and protocols employed in its collection. Although trustworthiness is necessary in qualitative data collection, some scholars still argue as to what constitutes trustworthiness or whether there is anything like trustworthiness in qualitative research (Leung, 2015). Trustworthiness in qualitative research is one of those shared realities although a subjective one, and according to Stahl & King (2020) unlike quantitative research, qualitative research does not seek replicability. This arises because the events and participants of qualitative research create a unique circumstance that is normally documented and interpreted. Furthermore, Stahl & King (2020, p.26) argue that “on a different day, with a different researcher, in a different place, with a different set of participants, readers can and should expect different findings”. Even when a given set of data is collected and shared, different writers can generate unique outcomes. This is because, for most qualitative researchers, reality is constructed.

However, the criteria for establishing the trustworthiness of data are put forward by Lincoln & Guba (2013) and Lemon & Hayes (2020), and widely accepted by most scholars and these include credibility, dependability, transferability, confirmability and authenticity.

The credibility of the data depends on the qualitative analysis (Lemon & Hayes, 2020), and the veracity of the information or the opinions of the participants and the researcher's interpretation and portrayal of them (Polit & Beck, 2012). This was achieved for this study by interviewing the children, men and women working in the artisanal and small-scale mine sites who gave testimonies and narrations of their lived experiences working in the mines and its effects on them. Some of the information portrayed harrowing experiences of discrimination, violence and injuries while also narrating the benefits they derive from their participation such as the income, companionship and the improved ability to meet family expenses and pay for the cost of education. The researcher noted and listened carefully to their narration and documented same. The study used triangulation techniques by comparing the information with those obtained from the individual interviews, the direct field observations and findings from the literature review to analyse the results to help future researchers in the particular subject (Moon, 2019). The study involved qualitative analysis of focus group discussions and interviews of participants involved in artisanal and small-scale mining activities, pictorial impressions from the drawing of children and field observations of the landscape where the artisanal and small-scale mining activities take place. The results of all the three tools of data collection reinforced each other through triangulation. The prolonged engagements establish credibility and contribute to the trustworthiness along with the persistent observations of the research participants. Participants in the focus group discussions agreed with each other on the information group members provided on the lived experiences of their involvement in the

mining activities and how they are affected or benefit (Polit & Beck, 2012). The research assistants checked the process and reviewed the data collected from the research participants and verified their statements and filled any gaps.

The study consists of information from low-income and poorer communities that are completely based on subsistence livelihoods and could apply to other impoverished communities undertaking the same activities of artisanal and small-scale mining. Researchers can utilise the data to understand the concerns of other similar communities in other developing countries. The purposeful sampling of the participants has provided maximum information related to artisanal and small-scale mining activities. The study has credibility as the data has been collected directly from the artisanal and small-scale miners and future researchers can depend on the study for references.

The confirmability of the qualitative analysis is crucial to replicate the work for future studies (Hayashi Jr, Abib & Hoppen, 2019). The data from the study was taken directly from the research participants, most of which were written verbatim with quotes from research participants. The researcher's interpretations and findings from the study reflect the data collected from the research participants (Kyngäs, Kääriäinen & Elo, 2020). The transcripts, codes, themes and analysis of the data were shared with the researcher's supervisor for review to confirm the results from the analysis. The sample size and methodology used for the interviews, focus group discussions and direct field observations are highly conclusive and encompass the overall dependability of the study. The interviews of the child miners have revealed their desperate conditions due to the mining activities and the degradation and conversion of the agricultural fields into barren lands has eroded livelihoods of communities. Some of the children are detached from their education that would improve their future lives

and basic health care is scarce in the communities. The working conditions are also dire with frequent accidents and no compensation from the owners of the mines. Adomako & Hausermann (2023) observe that these dire circumstances exploit the children and women in several ways. The use of the interviews in the research has provided detailed descriptions of the lived experiences and problems faced by the research participants due to their involvement in mining activities and its effects on their lives. The interpretations of the effects of the extraction of various minerals in the Kono and Bo districts of Sierra Leone have caused both immense benefits and a wide range of problems for the local communities (Conteh & Maconachie, 2021). The descriptive method used by the study analyses the involvement of the children in the mining activities and the effects of these on their day-to-day lives. The girls working in the mines earn less than their male counterparts and the lack of strength among the women makes them hard to get picked for work (Ofosu, Dittmann, Sarpong & Botchie, 2020). The credibility of the study is crucial for future researchers to consider the work and gather imperative data from the findings. The validation of the respondents and the accuracy of the study is verified by the researcher to meet the requirements for examining the research topic. The differentiation in the wages and the gender discrimination in the mines is highly detrimental to the incomes of the women (Paschal & Kauangal, 2023). The women go through multiple challenges in the mines due to the discrimination and the children are negatively affected due to this. However, the children working in the 'Kosobo' mines do work and attend school at the same time which is productive (Gatsinzi, 2020).

The trustworthiness of the data can be determined through the methodologies used by the researcher to gather information. The study can help the researchers to compare the similar effects in other mines around Sierra Leone and other countries in Africa. The variable

constructs of the various ages and gender in the analysis has proved to be beneficial to understand the effects on different age groups and genders. The women are responsible for work in the mines as well as household chores which takes a toll on their health and the children often work on the sites and attend school. It is detrimental to the overall growth of children and teenagers often fall into the dark habits of smoking, drinking and other petty crimes. The vulnerability of the women and children in the mine sites is exploited by men and most of them go through horrendous situations such as sexual exploitation or discrimination (Paschal & Kauangal, 2023). The member-checking methods used in the study help the researchers to validate and evaluate the information used in the research.

The transferability of the results of the study can be utilised by the adequate data collection methods used in the research (Stahl & King, 2020). The qualitative method was used in the research to determine the different situations of the women and children in the mining sites of Kono and Bo districts of Sierra Leone. The poor living standards and the environmental impact caused by the mining have taken a toll on the agriculture and basic amenities of the local communities (Ofosu, Dittmann, Sarpong & Botchie, 2020). The men who also participated in the focus group discussions largely confirmed the data collected from the women and children on their lived experiences at the mines and how they are affected in a differentiated manner.

The dependability of the study results was demonstrated by the consistency of the data collected from all three different communities where artisanal and small-scale mining takes place. The research participants in each of these communities (men, women and children) live in similar conditions, undertake similar activities and get affected similarly in their participation in the mining activities. The focus group discussions and individual interviews in

each of these communities presented similar lived experiences, adverse effects and benefits from their involvement in the mining activities, are consistent and could be replicated elsewhere, and similar findings obtained (Kyngäs, Kääriäinen & Elo, 2020).

The data for this study is authentic because the data collection process took into consideration the diverse realities of the data collected from the different categories of research participants and reflected the true data and information provided by the participants (Lehman, Oconnor, Kovacs & Newman, 2019). The child participants narrated lived experiences of having to combine working at the mines with attending school and using the income from the mines to cater for their school needs and to support their families while complaining of the tediousness of the tasks they perform which makes them sick as well as exposing them to dangers such as injuries and falling into uncovered pits. The women provided information on sexual abuse, wage discrimination, teenage pregnancies and problems with their spouses while at the same time acknowledging the immense benefits they derived from the mines in caring for their families and doing small businesses. The men had a different perspective of advocating for the exclusion of women in the mines as it promotes promiscuity, makes their spouses not respect them, physically demanding for women and how certain cultural practices prohibit women from doing mines work. The recognition of these different perspectives was all reported in a faithful manner and depicted the diverse realities of the research participants.

4.3 Reliability and Validity of Data

Although reliability and validity in quantitative research which are established through tests and measures may not be applied in qualitative research, there are alternative terminology associated with the credibility of qualitative research (Noble & Smith, 2015). In qualitative research, validity, which normally relates to the integrity and application of the methods

undertaken in the research and the exactness in which findings precisely reflect the data, may be referred to as the 'truth value' which connotes representing the participants' perspectives in a clear and accurate manner (Lincoln & Guba, 1985). In similar manner, reliability which in quantitative research refers to the consistency of the procedures of analysis, may be termed 'consistency' in qualitative research or the trustworthiness through which the methods have been undertaken and reliant on the researcher making clear and transparent decisions. With consistency in qualitative research, an independent researcher should be able to arrive at similar or comparable findings (Noble & Smith, 2015). The reliability of the data in the study is crucial to reproduce the information during other research and maintain consistency for longer periods. Data reliability is significant in the quality and integrity of the researcher and increases trust among future researchers (Maxwell, 2021). Further studies can be conducted and informed decisions can be taken to improve the overall quality of the research. The interviews conducted with the women and children in the two districts of Sierra Leone have showcased that their involvement in artisanal and small-scale mining activities is the result of the vast minerals found in the country and the illegal exploitation by authorities and mining companies. The data has been collected from the local communities residing around the mining sites and the problems faced by the research participants have been covered by various other projects.

The research consists of questions that are reliable for varied periods as they are developed to understand the lived experiences of participants of mining on their livelihoods and the environment around them. The reliability of data depends on a variety of factors, including the source of the data, how it was collected, and how it was processed (Stahl & King, 2020) and these have been exhaustive in this research. The current study focuses on the effects of artisanal and small-scale mining on women and children and the opportunities and

restrictions that are put into place by the men are discussed with the participants. Further reliability issues in the questionnaires were handled through the use and triangulation of various parallel tools such as the pictorial demonstration by the children and open field observations which gave similar results (Lemon & Hayes, 2020). The chances of getting similar answers for future researchers are high due to the reliability and validity of the current information being high, accurate and of high quality.

The reliability of the data also depends on the validity and the design of the questionnaires used for research (Sileyew, 2019) which are of high quality and justify the required information with extreme accuracy. Future researchers can use the same samples and the answers would be similar and accurate. The interview process for the children is especially crucial as their responses needed to be impeccable and comparable during future research. The appropriate time scale has been used to ensure the validity of the research (Mustafa, 2021). The questionnaire design used in the study is crucial for the reliability and methodology followed during the generation of the findings. A suitable sampling method has been adopted to maintain the validity of the data and not limit the research to a single finding. The respondents voluntarily provided the answers and did not skip any questions or provide vague answers to any of the questions asked.

The validity and reliability of the research cannot be eliminated as the respondents may have different lifestyles in the future but most of the issues have been conceptualised through the proper question structure (Belotto, 2018). The measurement and validity of the research have been able to produce a consistent and good measure of invaluable insight into the lives of the children and women in the mines. The men were also conceptualised through the view of the women and the problems faced by the women have been discussed critically.

The internal consistency of the participants' responses reflects the underlying construct so that it can be correlated with other data (Sileyew, 2019). The behavioural and psychological measures of the participants may change in future research challenging the overall reliability of the data. The extent of consistency among the individual participants can range from high to low for similar studies. The interrater reliability of the study observed in the interviews has been consistent in their judgements and provided the exact data required for the study (Mustafa, 2021). The test-retest reliability and internal consistency led the researcher to be more confident and the data collected was extremely reliable. The measures undertaken before conducting the research have helped in measuring the content validity and conceptualising the expected results.

The attitude of the participants towards the study has been examined by the researcher which were all consistent with no major outliers. The study has been free from discriminant validity as the behaviour of the participants has been analysed beforehand and the answers have been considered from the lived experiences of participants rather than hearsay. The validity of the judgement is dependent on multiple pieces of evidence and measures the reliability through the variables that are required to achieve. The reliability and validity of the data are not established from a single source or study but through multiple patterns of assessments on the ongoing process. Artisanal and small-scale mining activities have encroached on the agricultural lands disrupting the livelihoods and resulting in ecological imbalance in the communities (Ofosu, Dittmann, Sarpong & Botchie, 2020). The research reliability will help in further research on the effects of artisanal and small-scale mining on the local communities. It is important to have both reliable and valid data, or else the conclusions could be inaccurate

(Stahl and King, 2020). The reliable questionnaire will provide the same results even when taken twice from the same test subjects.

The reliability and validity of a study are important because they affect the strength of its conclusions (Belotto, 2018). Other researchers will use external factors to validate the data they have collected. One method would be waiting until another researcher studies similar questions and duplicates those results, which may improve the accuracy because they have used a reliable source for verification or replication. The data gathered from the participants, especially the women and children, have offered information regarding their issues in the mines and the discrimination faced in employment and wages. Measures for reliability and validity can be used together to ensure that a study has been conducted well enough for it to be deemed reliable and valid.

4.4 The Reuslts

The list and information on research participants are contained in Table 3 above and Table 5 below indicates the findings and results from the individual interviews and focus group discussions of participants' impressions, views on the positive and negative effects of artisanal and small-scale mining, especially on women and children, and some of the norms, cultural practices and traditional beliefs working against women and children.

More than 50% of Sierra Leone's 190 administrative chiefdoms are engaged in artisanal and small-scale mining (Mansaray, Aamodt & Koroma, 2018). While coltan and zircon are extracted, artisanal and small-scale mining is mostly for gold and diamonds. The majority of gold and diamonds are discovered in various aggregate trace levels from 6-10 metres in base across Sierra Leone's north, south, and eastern provinces, in high- and low-lying slopes, classic rock, waterways, and riverbanks (Conteh, 2017). Sediment diamond reserves are dwindling

and artisanal and small-scale miners face decreasing profits while continuing to explore new regions in the hope of discovering gems (Bryceson & Fisher, 2014).

As a result of dwindling returns in the diamond business, many people have switched to gold mining (Republic of Sierra Leone, 2018). In addition, the developing motorcycle transportation industry is enabling many young men to explore new locations in remote areas for artisanal and small-scale mining in Sierra Leone. Even though no empirical evidence on the number of people who participate in artisanal and small-scale mining has indeed been authored, it is approximated that artisanal and small-scale mining and methods of gathering offer livelihood support to at least 3 million Sierra Leone citizens directly and indirectly and that artisanal and small-scale gold and diamond mining companies affect up to 10 percent of the individuals residing in Sierra Leone (Republic of Sierra Leone, 2018). Until now, national policy and public accountability have been concentrated on large-scale mining expenditures, allowing artisanal and small-scale mining businesses to operate with far less government control at the district and regional levels (Republic of Sierra Leone, 2018). Inexperienced miners with little financial and technological capabilities, non-mechanized equipment, and asynchronous mining procedures characterise artisanal and small-scale mining activities. A fragmented strategy to artisanal and small-scale mining in which miners, merchants, wholesalers, and exporters act as separate segments of the mining process downstream and upstream results in the loss of possible value-added and value-chain opportunities (Republic of Sierra Leone, 2018).

With this background information, the purpose of this chapter is therefore to convey the results of the study conducted on the men, women and children participating in artisanal and small-scale mining activities in the research communities in Kono and Bo districts of the

Republic of Sierra Leone. It emphasises the effects of the artisanal and small-scale mining on the local communities, especially the children and women. The data collection methods consisted of interviews with boys, girls, men and women of different ages in three communities of Bo and Kono districts. The interviews were held with individuals and discussions conducted with focus groups to gather varied opinions and views on artisanal and small-scale mining and its effects, and a synopsis of the results is reflected in Table 5. Women and children are usually affected in different ways because of their vulnerability, and mining communities are more vulnerable to environmental effects, loss of farmland and pollution of drinking water sources (Pedersen, Nielsen, Friis & Jønsson, 2021) but also immensely benefit from the income that is earned from the mining and ancillary activities (Conteh & Maconachie, 2021) which can be used to maintain children in school, provide the much needed capital to women for income generating ventures, greatly improve their livelihoods or upgrade their social status in the community or bargaining power at the household level (Hilson, Hilson, Siwale & Maconachie, 2018). The women and adolescent girls suffer from domestic violence and sexual exploitation (Ibrahim, Rutherford & Buss, 2020; Sovacool, 2021) as there are few safety nets open to them for protection.

The research includes qualitative results from interviews with participants involved in the artisanal and small-scale mining activities. Working conditions are also very harsh with frequent accidents (Schwartz, Lee & Darrah, 2021) and no compensation from the government, financiers or the mine owners. These dire circumstances exploit children and women for a substantial part of their lives. The interviews in the study provided detailed descriptions of the benefits from and challenges faced by artisanal and small-scale miners as a result of the mining and the impact on their lives. Researchers can use the data to comprehend the issues faced and

benefits derived by communities in other underdeveloped nations that are similar to the communities the research was conducted in.

The interviews, focus group discussions and participants' rankings produced the below results. These results, which seek to answer the research questions looked at the benefits, negative effects and some of the traditional beliefs, cultural practices and norms that are practiced and which affect them, mostly women and children, in their participation in the artisanal and small-scale mining activities.

Table 5

Results from Participant Interviews, Focus Group Discussions and Ranking

Benefits of Mining for Men (N=60)	
Feed family	20
Educate children	15
Support wife's small business	6
Acquire assets	15
Go on Religious Pilgrimage	4
Negative Effects of Mining for men(N=60)	
Injuries	10
Financier and landowner take most income	12
Destroys our farms and rivers	7
Early marriages/teenage pregnancy	8
Sexual abuse/harassment of women and girls	7
Harassment by Police/Government officials	8
Children learn bad habits	8
Norms, Cultural Practices and traditional Beliefs affecting men (N=60)	
Women and children not allowed to own land for mining	13
Women and children cannot get licenses for mining	8
Women and children not allowed to dig	10
Women and children assigned menial tasks	9
Women and children last to get work	8
Women and children earn only wages	12
Benefits of Mining for Women (N=48)	
Support husband to take care of the family	10
Educate children	10
Acquire household utensils	8
Take care of children's health	6

Buy birds and animals to rear	4
Save towards needy day	4
Do small business	6

Negative Effects of Mining for Women (N=48)

Women earn less wages	10
Women last to be considered for work	6
Injuries/pains/hardwork	8
Frictions with husband	10
Sexual abuse/harassment	14

Norms, Cultural Practices and Traditional Beliefs Affecting Women (N=48)

Women not allowed to own land for mining	12
Women cannot get licenses for mining	8
Women not allowed to dig	6
Women cannot take decisions at the mines	8
Women asked to stay at home	8
Women menstruating cannot go to the mines	6

Benefits of Mining for Boys (N=30)

Income helps to stay in school	8
Support family feeding	5
Buy uniforms, sandals, footballs etc	7
Learn new skills	6
Company with friends	4

Negative Effects of Mining for Boys (N=30)

Children earn less money for same work	7
Children learn drinking and smoking	9
Injuries/hardwork	8
Falling into pits	3
Fowl language from adults	3

Norms, Cultural Practices and traditional Beliefs affecting Boys (N=30)

Boys considered as minors	8
Parents have strong say in mining activities	8
Boys cannot get mining licenses	6
Boys not allowed to dig for the minerals	8

Benefits of Mining for Girls (N=20)

Buy dignity kits	6
Income helps to stay in school	6
Support mother at home	2
Buy things to uniforms and sandals wear	2
Money helps us to keep away from boys	4

Negative Effects of Mining for Girls (N=20)	
Girls earn less money than boys	4
Sexual harassment from men and boys	6
Teenage pregnancies/early marriages	4
Injuries/hardwork/heavy bucket	6
Norms, Cultural Practices and traditional Beliefs affecting Girls (N=20)	
Mensurating girls cannot go to the mines	6
Parents take decisions on girls' mining	4
Girls asked to stay at home and take care of siblings	4
Girls cannot acquire land for mining	2
Girls cannot dig for gold or diamonds	4

In addition to the thematic analysis from the individual interviews and focus group discussions, each of the 83 participants in the data collection was persuaded to prioritise 2 most important benefits, 2 adverse effects and 2 norms, cultural practices and traditional beliefs that affect them in their involvement in artisanal and small-scale mining activities. It is interesting to note the difference in priorities between the men, women, boys and girls, as in Table 5 above. It should also be noted that this prioritisation aligns with the feedback from the individual interviews and focus group discussions for each group that was held in the research communities and formed part of the triangulation of the results.

4.5 Thematic Presentation of Research Questions

The examination of the holistic artisanal and small-scale mining pattern through the demographic analysis has results regarding the impact, perspectives, perceptions, experiences and concerns from the research communities. The research has successfully applied the qualitative approach in analysing the data collected from the interviews of the participants. Differentiating the participants into boys, girls, men and women in the research communities, the research has indicated the high probability of analysing their lived experiences to create an impactful contribution to their overall association with the social and economic development

of the communities (Wilson, 2022). Several findings from the interviews and discussions on the effects of the artisanal and small-scale mining activities on women and children indicate that from the earliest mining days of 1930 till 2022, the impact of the mining activities has gone through significant challenges and opportunities (Wilson, 2022). The below results using the research questions and themes, were inspired and informed by the three theoretical frameworks of gender, parental chracteristics and new sociology of childhood, for the study.

4.5.1 RQ1: How do Perceptions and Experiences of Vulnerability Feed into the Experiences of Women and Children Involved in Mining Activities?

This question seeks to explore the perceptions and experiences of men on the one hand, and those experienced by women and children themselves on the other, regarding their involvement in artisanal and small-scale mining activities. This will give a better understanding of what women and children go through as vulnerable and least advantaged members of their communities and how such vulnerability manifests itself in their involvement in the mining activities and consequently how they are impacted. The research question also seeks to explore any differences between challenges and benefits to men and those experienced by women and children in the mining activities.

The general perception is that men dominate economic and social life in many communities in Sierra Leone and whether such dominance extends to activities in the artisanal and small-scale mining to the disadvantage of women and children, and in what ways or forms.

4.5.1.1 Theme 1: Differentiated Earnings from the Mines

The responses from the interviews and discussions, and prioritisation conducted for the different groups indicate that women and children earn considerably less than their men counterparts even in sometimes doing the same tasks such as ‘pass bucket’. Nearly a quarteer of the women, a quarter of the boys, half of the girls (and none of the men) mentioned wage

disparities between women and children on one hand and men on the other as one of the negative effects of their involvement in artisanal and small-scale mining. While the men earned between 50,000-60,000 leones a day (at the time of the research), the women earned only up to 30,000 leones and the boys and girls earned up to 25,000 leones as daily wages, in the 'pass bucket' task.

Despite performing the same tasks as their male counterparts, women participants consistently reported earning significantly lower wages, as also documented by Danielsen & Hinton (2020). The wage gap, with women earning only half of what men do for the same work, underscores the gender-based discrimination prevalent in artisanal and small-scale mining operations. This discrimination is rationalised by the erroneous belief that men contribute more labour due to their perceived physical strength, perpetuating gendered norms that undervalue women's contributions. Children, too, face labour exploitation, receiving disproportionately low wages compared to adult workers despite performing the same tasks, as highlighted in the study. As a participant succinctly put it:

"Mining business is very difficult and dangerous. I think it is also exploitative because the owner of the site or land takes all the finds and pays us only the daily wage. Sometimes when we make a good find we know how much it will sell but we earn nothing from the sale of the find except the wages we get from the tedious work we do every day. The other thing I do not like about mining activities is that the pit can collapse and injure or even kill us. The use of simple tools such as pickaxes and shovels can also injure me if care is not taken in their handling. At the end of the day, I feel so much pains in my body due to the tedious nature of the activities that I use some of my small earnings to buy painkillers. As a boy, I earn between 25,000 to 30,000 leones as a daily wage which is too small given the nature of the job and the

fact that everything is now so costly in this country. I also feel cold in the evenings after the mining activities because I have to work in the rain and sun without protective clothing"

Moreover, the discriminatory practices extend to ownership rights as stated in quotation above, with women and children being deprived of the fruits of their labour as any minerals they discover are claimed by male landowners, as agreed by Ibrahim, Rutherford & Buss (2020). This gender-based dispossession further marginalises women and children, relegating them to the periphery of economic activities within mining communities and exacerbating their socio-economic vulnerability.

4.5.1.2 Theme 2: Other Exploitation of Women and Children

Exploitation in artisanal and small scale-mining mainifests itself in several forms for women and children. While earning less income than men is one form, other forms include demands for sexual favours, assigning less lucrative tasks to them, early marriages of teenage girls and luring innocent girls into prostitution. It should also be noted that females are the ones who most suffer exploitation because they are more vulnerable to exploitation by men being the opposite sex. From the thematic analysis and ranking of issues faced by men, women, boys and girls in artisanal and small-scale mining in the research communities, 7 out of 30 men, 7 out of 24 women, 0 out of 15 boys and 5 out of 10 girls mentioned one form of sexual exploitation or the other as a negative effect on women and girls in artisanal and small-scale mining. In addition, nearly half of the women participants mentioned 'friction' with their husbands as part of the vulnerability they face due to their involvement in artisanal and small-scale mining, as some husbands believe that their wives could be developing some relations with the rich male mine owners when they go to the mine sites.

The data reveals pervasive exploitation and discrimination faced by women and children in artisanal and small-scale mining activities, highlighting systemic inequalities entrenched within the mining sector.

The data underscores the disturbing prevalence of violence and abuse perpetrated against women and children by mine owners within artisanal and small-scale mining operations. There are instances of verbal abuse directed at women and children, with mine owners employing harsh and demeaning language that undermines their dignity and self-worth, which have also been documented by Yakovleva, Vazquez-Brust, Arthur-Holmes & Busia (2022) in other mining locations. Such verbal assaults inflict psychological and emotional trauma on the victims, particularly when carried out in the presence of their peers, exacerbating their vulnerability and eroding their sense of worth.

Moreover, the data reveals a distressing pattern of physical violence inflicted upon children by mine owners, often as a means of coercion or punishment for perceived inadequacies in their work performance. The use of physical force not only subjects children to pain and injury but also compels them to work beyond their physical capacity, as also highlighted by Leone (2021) for Sierra Leone. This exploitative practice not only jeopardises the health and well-being of children but also perpetuates a cycle of abuse and vulnerability within artisanal and small-scale mining communities.

The coercion and violence experienced by women and children within artisanal and small-scale mining settings have profound implications for their safety, dignity, and fundamental rights. The normalisation of such abusive behaviours perpetuates a culture of impunity and silence, further marginalising vulnerable groups and hindering their ability to seek recourse or redress. Additionally, the physical and psychological toll of violence and

abuse exacerbates the socio-economic challenges faced by women and children, impeding their empowerment and perpetuating cycles of poverty and exploitation.

Additionally, the data exposes the alarming prevalence of sexual exploitation, particularly targeting women and adolescent girls, within artisanal and small-scale mining operations settings. Kumar, Wata & Muthuraman (2020) also found that pattern in Ethiopia. The vulnerability of women and girls is exploited by male mine owners who demand sexual favours in exchange for employment opportunities, creating a coercive and hostile work environment. Such exploitative practices not only violate the rights and dignity of women and girls but also perpetuate harmful consequences, including divorce, unwanted pregnancies, school dropout, and exposure to sexually transmitted infections.

These results underscore the urgent need for comprehensive interventions to address the systemic exploitation and discrimination faced by women and children in artisanal and small-scale mining operations activities. Policy reforms and regulatory measures aimed at promoting gender equality, protecting children's rights, and combating sexual exploitation are imperative to ensure the safety, well-being, and empowerment of vulnerable groups in mining communities. Additionally, awareness-raising campaigns, capacity-building initiatives, and community-based interventions are essential for challenging gender norms, promoting equitable labour practices, and fostering inclusive development in the artisanal and small-scale mining sector.

4.5.1.3 Theme 3: Injuries, Pain and Hardwork

A common challenge to women and children in artisanal and small-scale mining is their susceptibility to injuries and pain while carrying out their tasks and also the fact that the work is harder for them than their male counterparts due to the physiological differences. 5 out of 30

men, 4 out of 24 women, 6 out of 15 boys, and 3 out of 10 girls reported injuries, pain and hardwork as contributing to perpetuating the vulnerability of women and children at the mines. When women and children are made to do the same tasks, such as ‘pass bucket’ with men, the weight of the mineral-bearing and wet sand is often too heavy for them. This constitutes hard work and also causes them a lot of pain at the end of the working day.

It is also commonplace for the bucket to fall on their feet when passing it from one person to the other due to the carelessness of the person handing it over or the person receiving it or the bucket being too heavy to easily pass on. This was a frequent complaint especially from the children as the cause of their absence from school due to injuries and pain rather than the involvement in the artisanal and small-scale mining itself. It was also narrated these injuries from the mines took up a sizeable chunk of the already small earnings from the women and children in treating themselves as they had to buy medicines to take to get well.

Vulnerability related to injuries and pain is the risk of especially women and children falling into uncovered pits left behind after artisanal and small-scale mining activities. Excavation of soil to extract minerals, even though not as deep as in large-scale mining, often leaves pits deep enough to pose a danger to minors and vulnerable people such as women and children and also livestock. Participants noted that these pits often appear as though they are shallow pools of stagnant water but falling into them can injure or even drown their victims, especially women and children, who do not know that excavation took place in these locations while looking for firewood in the bush or going to the farm.

Other injuries are obtained from the pit collapsing on them or when they are asked to search for minerals in water. They also experience psychological pain when they witness fighting at the mine sites, and even though not a physical injury can adversely affect them. The

below statement from a child participant explains the vulnerable situation in which children in artisanal and small-scale mining find themselves:

"We do not like the fighting at the site between people who are either contesting for finds or space or simple misunderstanding. We also do not like going to the site and returning empty-handed as we only get paid by the mine owner who is the investor only if we make some finds of gold or diamonds. If we find nothing we get nothing. Our worst experience has been trees falling on us at the mines, injuring or sometimes killing some of us. This happens when we dig tunnels under a tree to look for gold or diamonds. The tools we use such as pickaxes and shovels can also sometimes injure us seriously if we make mistakes in using them. The pits we dig to find the gold or diamonds can also sometimes collapse and injure us or even kill us. We have lost some friends and brothers that way. Some searches for diamonds and gold can also happen underwater. This leads to drowning sometimes and we have also experienced our friends and brothers die that way when the underwater pit collapses. We also sometimes get dislocations in our wrists from hauling the heavy sands in buckets or other containers."

4.5.2 RQ2: How do Women and Children Experience Greater or Less Forms of Vulnerability within Mining Communities?

This question explores to understand from the lived experiences of women and children as vulnerable groups some of the challenges they go through in mining communities about being empowered as participants of artisanal and small-scale mining and how such involvement is not leading to the attainment of the much desired financial and economic autonomy that they seek on an equitable basis with men, as they perform some tasks that are similar to those done by men.

In much of Sierra Leone, women are still engaged in traditional roles as mothers and family carers (Eisend, 2019) whereas men are able to migrate and find useful employment or

other economic opportunities in other locations of the country, but women and children are more likely to remain at home to take care of the children or elderly people or attend school. This research question is meant to explore the lived experiences of women and children in mining communities with regard to their vulnerability and the limitations in taking advantage of the availability of mineral resources to improve their well-being.

4.5.2.1 Theme 1: Women and Children Engage in Menial, Unviable Routine Mining Activities

The disparity in physical strength between men, women, and children, gendered practices and stereotypes, exacerbates the unequal distribution of earnings and opportunities within artisanal and small-scale mining activities. 100% of the women and children participants interviewed in the research communities mentioned that they were not allowd to do certain tasks because they are considered weaker than men. They can only do the ‘pass bucket’ tasks, crush rocks, collect water for the male workers and run errands to buy cold water, cigarettes or food. 8 out of the 24 women mentioned that they are the last to get work at the mines if there are few opportunities to go around everyone. This is because women, boys and girls are considered unsuitable for many mining tasks largely due to their perceived weakness as compared with men for such tasks. As highlighted by Arthur-Holmes & Abrefa Busia (2021), the inherent physical weakness of women and children relative to men limits their ability to engage in tasks that yield higher wages, relegating them to menial and economically unviable activities within the mining sector. While men undertake the more lucrative tasks, such as entering the pits where minerals may be found, women and children are often assigned tasks such as carrying sand, 'passing the bucket' to remove sand, crushing rocks, collecting water, and cooking food for miners (Buss et al., 2019).

A participant's quote below from one research community where women and children are restricted from participating in mining activities sums this situation up:

> *"The men are the ones mostly involved in the mining activities in the community because they are stronger since the activities are physical in nature. Also, men have more responsibility in taking care of the family. Also, our culture only allows men to go to the mine sites to work. The women and children support them to do the mining in other ways. The women may go to the mines to sell little items that the men need or send them food to eat and get the strength to do the digging. The children also stay at home to take care of child work such as cleaning and taking care of the animals. Mining affects our men badly. Some of them end up having sight problems and becoming blind or have ear problems and become deaf, and a lot of body pains from the hard work that they do all day almost every day".*

This division of labour based on gender and age perpetuates the marginalisation of women and children in artisanal and small-scale mining, as they are confined to low-paying and routine activities that offer only daily wages, or no wages at all as they are considered to be supporting their husbands in ancillary roles. In such support roles, they cannot earn income directly from the mining activities but rather receive compensation from their husbands. Their vulnerability to exploitation and exclusion from the main revenue-generating activities further exacerbates their socio-economic disadvantage (De Haan, Dales & McQuilken, 2020). Even if women and children stumble upon valuable finds, their lack of ownership rights means that such discoveries are often seized by mine owners, reinforcing their economic dependency and perpetuating their exploitation and exclusion.

These results of women and children relegated to routine and menial tasks in artisanal and small-scale mining activities underscore the urgent need for interventions aimed at addressing the structural inequalities and vulnerabilities faced by women and children in artisanal and small-scale mining. Efforts to promote gender equality and protect children's rights must prioritise measures to mitigate the exploitation and discrimination experienced by these vulnerable groups in mining communities. Policy reforms and initiatives that challenge traditional gender roles, enhance access to education and training, and empower women and children economically are essential for fostering inclusive and sustainable development in the artisanal and small-scale mining sector.

4.5.2.2 Theme 2: Limited Opportunities for Economic Independence for Women and Children

The data highlights the complex dynamics of economic empowerment and dependence within artisanal and small-scale mining communities, particularly for women and children. Data from the thematic anaylsis of interviews and focus group discussions in Table 5 reveal that aside from their involvement in artisanal and small-scale mining activities to complement the traditional subsistence farming activities during the rainy season, there are very few, if any, other income-generating opportunities that can make women and children attain the economic independence from men that they so desire to. To buttress some of the continuing dependence of income from men due to the limited earnings of women, a female participant put it:

> *"Sometimes I am disappointed or discouraged when he (husband) does not make a find for a very long time after doing a lot of hard work. We end up getting into debt because we borrow for the upkeep of the family in anticipation that he will make a find soon but it does not happen."*

Overwhelmingly, the women and child participants paint a situation of almost total reliance on the income they earn from their involvement in the artisanal and small-scale mining activities. Such income, though small, helps the women increase their dignity at home by contributing to household expenditure, undertaking small businesses such as petty trade, acquiring household assets such as kitchen utencils and procuring dresses. The girls state the significant contribution that the income makes in maintaining them at school either through the provision of lunch or other school related expenditure, being able to buy dignity kits when they are in their monthly menstrual cycle and other useful support, without which they would have had to drop out from school. As noted by Hilson, Hilson, Siwale & Maconachie (2018), artisanal and small-scale mining provides a vital opportunity for vulnerable groups to earn income and achieve a degree of economic independence from traditional sources such as husbands or parents. Such income even though very useful, does not promote any adequate economic empowerment as the women and children are only in menial routine tasks that earn very little income. As a female child states:

> *"Mining also decreases dependency by some children on others because it is better to go and look for the money yourself than to depend on another person for help all the time and I like the money I earn from the 'kosobo' work. I am also happy when my friends talk to me when I am working because other people avoid me. The 'kosobo' is the only hope I have for my survival as a sick person because nobody will give me a job. I am therefore happy and pray that there will continue to be 'kosobo'".*

The dwindling yields from subsistence agriculture and the lack of alternative economic activities further underscore the importance of artisanal and small-scale mining as a livelihood strategy for these marginalised groups.

Indeed, the ability to earn income through artisanal and small-scale mining can significantly reduce women and children's dependence on their husbands or parents, offering them a degree of financial autonomy and flexibility in meeting their own needs. This economic empowerment can contribute to increased respect and recognition within the household, as noted by Danielsen & Hinton (2020). When women can contribute financially to the family expenditure, they often experience greater agency in household decision-making processes, challenging traditional gender roles and power relations.

However, it is essential to acknowledge the inherent risks and challenges associated with economic independence within artisanal and small-scale mining contexts. While earning income may mitigate over-dependence on husbands or parents, it does not necessarily guarantee freedom from exploitation or abuse. Women and children engaged in artisanal and small-scale mining still face significant barriers to their safety and well-being, including verbal and physical abuse, as highlighted in previous analyses.

Furthermore, the notion of economic independence within artisanal and small-scale mining must be contextualised within broader socio-economic realities, including the pervasive poverty that characterises many artisanal and small-scale mining communities. Despite their earnings from mining activities, women and children may still struggle to meet their basic needs due to limited economic opportunities and resource constraints. Thus, while artisanal and small-scale mining offers a pathway to economic empowerment, it is not a panacea for poverty alleviation and must be accompanied by comprehensive interventions to address underlying cultural practices, and norms that contribute to structural inequalities and vulnerabilities.

While artisanal and small-scale mining provides opportunities for economic independence and empowerment for vulnerable groups, it also underscores the complex interplay between economic agency, dependence, and vulnerability within marginalised communities. The below statement from a schoolboy narrates the complex interplay of how children's participation in artisanal and small-scale mining is viewed by parents and teachers:

> *"Our parents encourage us to continue with the mining activities despite the horrors because the income we earn supports us and them. They however ask us to be careful when doing the activities to prevent or minimise injuries or even death. Our teachers used to discourage us to stop the mining activities and concentrate on our school but how could we do this if we do not have the money to keep us in school? The lack of money has made us drop from school."*

Another schoolgirl added that:

> *"Our teachers are against our involvement in 'kosobo' because they want us to concentrate on our education but we cannot stop 'kosobo'. If we stop then we will rather drop out from school. Our involvement in 'kosobo' does not also affect our school attendance because we go to 'kosobo' only on weekends and holidays. Our parents either do not say anything about our doing 'kosobo' or encourage us to continue because it supports the family upkeep and welfare."*

Efforts to support women and children in artisanal and small-scale mining must prioritise not only income generation but also address the underlying socio-economic determinants of vulnerability and ensure the protection of the rights and dignity of women and children through community-focused and locally-led education programmes and other projects

aimed at improving the well-being of women and children in artisanal and small-scale mining communities.

4.5.2.3 Theme 3: Barriers to Viable Participation of Women and Children

The data from the interviews and focus group discussions highlights significant barriers faced by women and children in accessing and participating in artisanal and small-scale mining activities, particularly related to financial resources and socio-cultural norms. From the data in Table 5, women are not allowed to dig as digging is the activity that produces the gold or diamonds. They are allowed to carry the mineral-bearing sands to pan, crush the rocks that contain the minerals and are paid only daily wages regardless of the amount of money realised from finds. Likewise, children can only participate in the activities rated as child work such as running errands and doing routine tasks at the mines. In most situations, women and children in artisanal and small-scale mining, despite their significant contribution, are not considered as miners. As concurred by Hilson, Hilson, Siwale & Maconachie (2018), women often lack the financial means to invest in artisanal and small-scale mining due to limited access to capital and the reluctance of financial institutions to lend to them. This financial exclusion perpetuates their economic marginalisation and hinders their ability to engage in profitable mining activities.

Moreover, as will be explained more elaborately later in the chapter, cultural and traditional norms further exacerbate the challenges faced by women and children in artisanal and small-scale mining. Landowners, who are predominantly male, seldom sell land concessions to women for mineral exploitation due to entrenched gender biases and patriarchal structures. This lack of access to land inhibits women's participation in artisanal and small-scale mining and reinforces gender-based inequalities in resource ownership and control.

Similarly, children encounter formidable barriers to their involvement in artisanal and small-scale mining, primarily due to their status as minors and societal expectations regarding their care and education. Despite the potential economic opportunities offered by artisanal and small-scale mining, children are often prohibited from participating in mining activities due to concerns about child labour and exploitation. In one of the research communities, Gollu in Bo district, girls are forbidden from participating in artisanal and small-scale mining activities and boys can only run errands for the miners.

As one adult participant clearly put it:

"We seldom allow boys and girls to get involved because of the tedious nature of the activities. We do not also want them to be exposed to the dangers of the mining activities such as injuries from the tools and getting buried in the pits. If we allow the boys and girls to get involved and are exposed to the money they are likely to also abandon their education in search of money at the mines".

It was explained that children should not be exposed to money because it could make them drop out of school, or in the case of the girls run after men for money and therefore become pregnant. This not only limits their economic agency but also perpetuates intergenerational cycles of poverty and marginalisation.

These barriers underscore the intersecting dimensions of gender and age-based discrimination within artisanal and small-scale mining, contexts. Women and children face systemic obstacles to their meaningful participation in artisanal and small-scale mining, ranging from financial exclusion to cultural norms that restrict their access to resources and opportunities. Addressing these barriers requires comprehensive interventions that address the

structural inequalities and power imbalances that underpin gender and age-based discrimination in artisanal and small-scale mining operations.

Efforts to promote gender equality and child rights in artisanal and small-scale mining must go beyond addressing individual barriers and address the broader socio-economic and cultural contexts that perpetuate gender and age-based inequalities. This includes initiatives to improve access to financial resources for women, challenge gender norms and stereotypes, and promote inclusive policies and practices that empower women and children to fully participate in artisanal and small-scale mining activities. By addressing these systemic barriers, artisanal and small-scale mining communities can create more equitable and sustainable pathways to economic empowerment for women and children.

4.5.2.4 Theme 4: Working Conditions for Children

There is a paucity of data on how many children are involved in artisanal and small-scale gold and diamond mining in Sierra Leone but Conteh & Monacochie (2021) contend that there are probably 500,000 children involved in various activities in the artisanal and small-scale gold and diamond mining sector. Most of these children are engaged in what is called ‘child work’ doing routine non-hazardous tasks. However, the data collected from the research communities indicate that some of the tasks children participate in the mines may be too hard for them such as being part of the ‘pass bucket’ activity. This involves passing a bucket full of soil to be washed for minerals. The weight of the bucket is too heavy for most children. This leads to injuries if the bucket falls on their feet or they go home sick or with severe pains from the day’s activity. This situation underscores the pervasive issue of difficult working conditions for children in the artisanal and small-scale mining areas of Sierra Leone, particularly in the diamond and gold mines. Despite the country's commitment to international labour conventions

aimed at eliminating such practices for children, Sierra Leone continues to grapple with high rates of difficult working conditions for children in the artisanal and small-scale mining sector. As highlighted by Conteh & Maconachie (2021), over half a million children in Sierra Leone were reported to be out of school and engaged in hazardous mining work in 2011, indicating a widespread and entrenched problem.

One of the most concerning aspects is the employment of children under the age of 12 in mining activities, which not only violates national laws but also contravenes international standards on child rights and labour. Frankfurter et al. (2018) point out that these children are denied basic rights and protections afforded to adult employees, such as access to medical benefits, further exacerbating their vulnerability and exploitation.

Despite government efforts to promote free quality education at the basic level, the economic realities in mining towns compel children to work alongside their parents in mining activities, depriving them of crucial time for rest and academic pursuits. This dual burden of attending school on weekdays and mining work on weekends not only undermines their right to education as they do not have ample time to study during the weekends and on public holidays, but also perpetuates intergenerational cycles of poverty and exploitation.

The situation underscores the urgent need for comprehensive measures to address the root causes of difficult working conditions for children in the mining sector, including poverty, lack of alternative livelihood opportunities, inadequate funding for the free education initiative and weak enforcement of labour laws. Civil society organisations and human rights activists play a crucial role in advocating for the rights of these children and holding stakeholders accountable for their well-being.

Moreover, concerted efforts are needed to strengthen regulatory frameworks, improve access to education through the injection of adequate financial resources and social services, and empower communities to create sustainable livelihood alternatives to mining. By addressing these underlying factors, Sierra Leone can make significant strides towards eliminating difficult working conditions for children in the mines and promoting the rights and well-being of its most vulnerable populations.

4.5.2.5 Theme 5: Weaknesses in the Regulation to Protect the Well-being of Women and Children

The women, men and children participants of the research communities revealed the lack of local or national regulations to protect the vulenarble people in artisanal and small-scale gold and diamond mining activities such as women and children. The data highlights the challenging landscape surrounding efforts to combat difficult working conditions for children and the protection of the rights of women and children in Sierra Leone. While there have been some advancements, such as amendments to protocols aimed at addressing forced labour and human trafficking, these measures are hindered by pervasive corruption within Sierra Leone's police force and as Fayiah (2022) reports, the Sierra Leonean police force has consistently been in the news in connection with corrupt practices. As noted by Correia (2016), despite legal reforms, the widespread corruption undermines the effective implementation of laws and regulations, particularly at the grassroots level where exploitation of women and children in mining regions is rampant.

A number of laws and policies have been enacted by the government of Sierra Leone with the noble intention of protecting the rights of women and children in the country but their implementation remains a huge challenge due to the limited capacity, in terms of skills, staff numbers and financial resources, to implement them.

All participants interviewed and the focus group discussions mentioned the periodic raids by the Sierra Leone National Police on mining sites especially when finds have been made of gold or diamonds. Those raids sometimes lead to the seizure of good fines, claiming that all gold and diamonds in Sierra Leone belong to the government as stated by a participant:

> *"Mine officials and police sometimes come to harass us saying we do not have the licenses to do the mining activities but we are just daily workers and they need to go find out that from the investors or mine owners. The officials harass us for money and sometimes seize our tools and take them away if we do not pay the money. They tell us what we are doing is illegal and even threaten to arrest and send us to Bo or Freetown. Also, when they hear that a good find of gold or diamond has been made at a particular place, they immediately come there to ask for the find saying that all minerals belong to the government. We know that because of jealousy from some of our competitors at the mines, they leak any finds so that it is confiscated and we lose the find."*

The situation is further compounded by the prevalence of the bad forms of practices, including commercial sexual activities and trafficking, inflicted upon vulnerable populations, particularly women and children. Cortes-McPherson (2020) highlights the disturbing trend of government officials' involvement in trafficking and exploitation, contributing to a culture of impunity and lack of accountability.

This apathy from both the government and regional police perpetuates weaknesses in regulatory mechanisms designed to protect the well-being of women and children in mining areas. The failure to address systemic corruption not only undermines efforts to combat child labour but also perpetuates cycles of exploitation and abuse.

Additionally, the weak enforcement of the government pricing regulations for precious minerals for artisanal and small-scale miners further undermines their efforts and adversely affects earnings. Unlike in large-scale commercial mining where regulations on prices are succinctly clear, that is not the case with artisanal and small-scale miners who rely on information on prices of their finds from their financiers and merchants. As a miner put it:

> *"We labour very hard in digging out the pits. Sometimes we do not even have investors to sponsor the work but when we make some finds they come to buy it cheaply from us because we do not know the price of the minerals in the market".*

The implications of these results underscore the urgent need for comprehensive reforms to address corruption within law enforcement agencies, strengthen regulatory frameworks, and enhance accountability mechanisms. Without addressing these root causes, efforts to eliminate difficult working conditions for children and protect the rights of women and children in Sierra Leone will continue to face significant challenges. Additionally, concerted efforts from civil society organisations, international partners, and local communities are essential to advocate for systemic change and ensure the effective enforcement of laws and regulations aimed at safeguarding vulnerable populations.

The persistence of illegal and unregulated artisanal and small-scale mining activities in Sierra Leone poses significant challenges despite advocacy efforts by the government, donors, and NGOs for sector regulation (Maconachie & Conteh, 2021). These informal practices, often condoned by local chiefs and community leaders, hinder policy reforms and the equitable distribution of benefits to mining communities.

The lack of formalisation of artisanal and small-scale mining operations undermines efforts to implement taxation schemes and allocate funds for community development

initiatives. Consequently, opportunities to address the socio-economic needs of women and children, and to mitigate their exploitative involvement in mining activities, remain limited (Maconachie & Conteh, 2021). Moreover, the absence of regulation creates low barriers to entry into artisanal and small-scale mining, disproportionately benefiting men who typically have greater access to land and capital for investment and significantly accelerating land degradation and pollution of drinking water sources.

This perpetuates or worsens existing gender disparities and exacerbates the vulnerabilities of women and children in mining communities. Without effective regulation and formalisation of artisanal and small-scale mining activities, efforts to promote sustainable development and alleviate poverty among vulnerable populations will continue to face significant obstacles. Thus, there is a critical need for comprehensive policy reforms and enforcement mechanisms to ensure the responsible and equitable management of Sierra Leone's artisanal and small-scale mining sector.

4.5.3 RQ3: What are the Impacts of Working Within Mining Activities for Women and Children, Especially in Providing Opportunities and Restrictions on their Lives?

This question seeks to understand any differences in the effects on women and children involved in artisanal and small-scale mining activities and how these activities are beneficial to them or how such involvement limits other opportunities to them. The question will help give meaning to any gender and age-based differences in impacts between women and children on one hand and men on the other.

4.5.3.1 Theme 1: Income from Mining Activities in the Communities

The rich mineral resources of Sierra Leone, including diamonds, gold, and various other minerals, have historically played a significant role in the country's economy. However, the

mining sector has faced numerous challenges, including political instability, wars, and more recently, the Ebola and Covid-19 pandemics, which have disrupted mining activities and affected the livelihoods of miners (Fayiah, 2020; Marks, 2019).

The data from the interviews, focus group discussions, and the priority rankings in Table 5 indicate that many of the participants cherish the income they get from their involvement in artisanal and small-scale mining to solve so many problems. 10 out of the 30 men indicated that they use the income to feed their families, 8 out of the 30 said they use the income to educate their children in school and another 8 said they use the income to acquire assets. 5 out of the 24 women indicated that they use the income to support their husbands in household expenditure, 5 out of the 24 said they use such income to educate their children, 4 said they use the money earned from the mining activities to acquire basic household assets and another 4 said they do small businesses with the money. With regard to the boys, 4 out of 15 indicated that they use the income to stay in school, 3 said they support their families with the income, 4 of them indicated they buy their school uniforms which adds to the efforts to stay in school. For the girls, 3 out of 10 said they use the income to buy ‘dignity kits’ during their monthly menstruation cycle, 3 said the income supports them to stay in school by buying lunch and other education related expenditure and 2 indicated the income helps them stay away from boys.

Local government regulations and interventions have further impacted contractual and waged mine workers, who constitute a significant portion of the mining workforce. Conteh & Maconachie (2021) note that these regulations, including allowing the use of machines in artisanal and small-scale mining operations, have led to changes in how income from mining activities is distributed among workers, with a shift away from individual artisanal and small-

scale miners retaining large finds of diamonds or gold to owners of the machines and government officials. Previously, such finds were used for both personal and community development purposes, contributing to economic and social development (Maconachie & Conteh, 2021) in these communities.

However, the reliance on rudimentary mining tools such as shovels, pick axes, buckets and wheelbarrows poses significant risks to miners, including accidents and loss of lives, especially in the absence of adequate health insurance and provisions. Tragically, the loss of parents often leads to children or teenagers taking up mining activities at a young age, further perpetuating the cycle of risk and vulnerability (Ankenbrand, Welter & Engwicht, 2021). The lack of healthcare facilities exacerbates health-related issues among mine workers, contributing to hazardous diseases and deformities (Ibrahim, Rutherford & Buss, 2020).

Nevertheless, despite these challenges, there have been opportunities for growth and development within the artisanal and small-scale mining sector. The increase in sub-sectors within artisanal and small-scale mining, coupled with investments from foreign companies and individuals, presents new opportunities for economic empowerment, particularly for women. Women are increasingly involved in ancillary activities such as food sales and other businesses catering to miners' needs, thereby diversifying their income sources and fostering entrepreneurship (Ibrahim, Rutherford & Buss, 2020; Mackenzie, 2020).

Overall, while the mining sector in Sierra Leone faces numerous challenges, including health and safety risks, lack of infrastructure, and regulatory issues, there are also opportunities for growth and development, particularly within the artisanal and small-scale mining sector. Addressing these challenges and harnessing the potential of artisanal and small-scale mining

could contribute to sustainable economic development and improved livelihoods for mining communities in Sierra Leone.

4.5.3.2 Theme 2: Dependency of Women on Artisanal and Small-Scale Mining

The data in Table 5 underscores the significant economic role played by artisanal and small-scale mining in rural communities in Sierra Leone and other Sub-Saharan African countries. As a mostly indispensable off-farm off-season income generating activity, many households in the research communities rely on income from it directly or indirectly, and its contribution to household welfare cannot be exaggerated, and as a female participant stated:

> *"I sometimes benefit from my husband when he makes a find of diamonds or gold. He gives me money to buy things for the family such as food and clothes for the children. He also helps me with some money to do some trading in foodstuffs"*

Indeed, Kumah, Hilson & Quaicoe (2020) highlight artisanal and small-scale mining's contribution to local economies through the provision of direct employment opportunities for men, women, and children. For women particularly, participation in artisanal and small-scale mining serves as a vital source of income, with daily wages earned from mining activities often constituting their main means of livelihood (De Haan, Dales & McQuilken, 2020), complementing agriculture, in the absence of other livelihood opportunities.

The diminishing viability of traditional livelihoods such as farming due to land degradation and other economic, climatic and global factors further underscores the importance of artisanal and small-scale mining as a primary economic activity for these communities. As highlighted by the study, the lack of alternative income-generating opportunities increases women's reliance on artisanal and small-scale mining for sustenance (Leone, 2021). This over-dependence on artisanal and small-scale mining is not solely driven by economic factors but is

also a consequence of pervasive poverty within these communities. With many households living below the poverty line and lacking government support or social safety nets, artisanal and small-scale mining becomes the only viable option for earning a livelihood (Buor & Ayim, 2019). The importance of artisanal and small-scale mining to the livelihoods of people of the mining communities and their families is buttressed by the following statement from a participant:

> *"We started small-scale mining in 1964 in this village but we the members in this group started at different times averaging about 10 years ago. Most of us started when we were still in school and we were mining under our parents. Our impressions at the time we started mining were positive because our parents used the earnings from the mining activities to pay our school fees, our lunch cost in school, buy us clothes and other things such as bicycles".*

While women may use their earnings from artisanal and small-scale mining in the best interest of the family such as contribution to household expenditure, procurement of assets such as cooking utensils for household use, and engagement in small businesses to support feed the family, the men often have diversified uses of the proceeds some of which do not cater for family welfare. For example, a male participant stated that:

> *To our families, mining helped most of our people or fathers to afford the cost of travel to Mecca to pay homage to the prophet Mohamed and to become Alhajis"*
>
> And another added that: "*Mining helped us put up the mosque in our community from communal mining proceeds".*

Besides the direct dependence on income from artisanal and small-scale mining activities through the daily wages they earn from doing the 'pass bucket' routines, the women

also indirectly earn some income from other services offered to migrant workers or by selling goods and services to the mineworkers. As stated by a female participant:

> *"The other benefit we get from the mining activities is that migrant miners who come to our community to work in the mines find rooms to sleep in and do the mining. They pay rent to us and this generates additional money for the welfare of the family even though it is not directly from mining activities but because of the mining that those people come to our community. Some of the migrant miners contract us to cook for them and this is also another source of earning some benefits from the mining activities."*

In contrast to the women, a major motivation for men engaging in artisanal and small-scale mining activities as informed by the interviews and focus group discussion is the construction of houses and religious places of worship although currently this is now limited due to the dwindling finds of gold and diamonds in the mining communities and the individualistic retention of proceeds which was not the case previously, as can be observed from the statement:

> *"One of the benefits is that the men contributed some of the money they earn from the mining activities to build the mosque in the community. The men also save their monies to build houses for us the women and our children to live in. The men also pay school fees of their children from the money they earn from the mining activities.".*

However, despite the crucial role played by women in artisanal and small-scale mining, their participation is often confined to specific roles within mining activities, leading to marginalisation and exploitative labour arrangements (Leone, 2021). This highlights the need

for gender-inclusive policies and practices within artisanal and small-scale mining sector to address systemic inequalities and promote equitable participation and benefit-sharing.

The data also sheds light on the complex interplay between poverty, gender dynamics, and artisanal and small-scale mining participation. The inability of husbands to adequately provide for their families due to economic constraints further reinforces women's reliance on artisanal and small-scale mining as a means of survival. This underscores the multifaceted nature of poverty and its impact on livelihood strategies within these communities.

Overall, the results underscore the critical importance of artisanal and small-scale mining as a livelihood strategy for rural communities in Sierra Leone and other Sub-Saharan African countries. However, they also highlight the need for comprehensive interventions to address gender disparities, promote sustainable livelihoods, and alleviate poverty within artisanal and small-scale mining communities. Such interventions should prioritise gender equality, promote inclusive decision-making processes, and support alternative livelihood opportunities to reduce dependency on artisanal and small-scale mining.

4.5.3.3 Theme 3: Impact of Mining on the Education of the Children

The data highlights the complex dynamics and causal explanations and circumstances surrounding children's involvement in artisanal and small-scale mining activities in Sierra Leone. Traditionally, artisanal and small-scale mining has been dominated by adult males, but the decline in results, the illegal and unregulated operations of mines have led to increased participation of children, particularly boys, in mining activities (Ofosu & Sarpong, 2022). The involvement of children, while it may be considered as difficult working conditions for them, often provides some income to meet needs that may be unaffordable by their parents. As a girl participant put it:

"We are involved in mining activities. We do 'pass bucket' for gold and diamonds. We go to do 'pass bucket' for money to survive. The money we get is used in meeting our needs such as school fees, clothes, shoes and other childhood needs".

While children's involvement in artisanal and small-scale mining provides additional income for their families and supports their education, it comes at a significant cost to their health and well-being.

These results support the revelation in the following response:

"We all 4 dropped out from school because the income we earn from the mining activities could not sustain us in school due to the high user cost of education. The gold and diamond finds have dwindled and it is now difficult to get them and we do not know why. Gold and diamonds used to be abundant, and it helped us to stay in school but these days we will work for days and weeks without finding anything. Our parents are either dead or too poor to support us in school. Also, we work with an investor to give us the money to acquire the site. The investor also pays for the tools and the labour at the site. Therefore, whatever little finds we make we give to the investor. After the investor takes away all his expenses sometimes there is nothing left to share with us".

The data from the interviews and focus group discussions point to children often engaging in physically demanding tasks such as "pass bucket" and shoveling to earn extra income for school expenses and contribute to household needs, which is also corroborated by Schwartz, Lee & Darrah (2021). However, this exposes them to hazards and injuries, leading to physical and mental health issues (Smith, Ali, Bofinger & Collins, 2016; Zvarivadza & Nhleko, 2018). The lack of compensation for injuries further exacerbates the situation, forcing

children to sometimes prioritise work over education and compromising their long-term prospects.

Nothwithstanding the immense benefits that children derive from their involvement in artisanal and small-scale mining tasks for themselves and their families, their exposure to the often illegal and unregulated activities is a fertile breeding ground for acquiring bad habbits such as drinking and smoking at an early age or wayward behaviour towards adults, a practice very much frowned upon in Sierra Leonean culture. As depicted below by a child participant:

> *"Some of the girls can also become pregnant at the mines when they get lured by money from the men and boys and some get abused such as slapping their buttocks or holding their breasts by men and boys. The boys too can learn bad habits such as smoking cigarettes or Indian hemp or 'kush' and drinking alcohol at an early age. I used to smoke both Indian hemp and cigarettes but stopped because my parents were very angry with me and promised to stop me from going for 'kosobo' because that is where I learned it".*

Moreover, impoverished girls who drop out of school due to poverty are vulnerable to exploitation and abuse, including involvement in prostitution (Rutherford, 2022). This perpetuates a cycle of poverty and exploitation, making it challenging for any laws or parents and communities to address these issues effectively.

Despite these challenges, children's involvement in artisanal and small-scale mining activities is often necessary to support their education and contribute to family expenses, especially for orphaned children (O'Driscoll, 2017; Potter & Lupilya, 2016). The earnings from mining activities play a crucial role in keeping children in school and alleviating financial burdens on their families. As a male child stated:

"I like being occupied doing something to earn income for my family. The thought of the suffering of my family is what keeps me going at the mines even though it is not as profitable as many people think. For we the boys in this community, there is very little other work we can do except farming and mining".

Income earned from artisanal and small-scale mining also affords children's parents ability to send them to and keep them in school by paying school related costs, and this is reflected in the statement:

"With money from the mining activities, we have been able to keep our children in school and able to marry our wives. We have also been able to build houses in our community and in other cities as well as buy motorcycles for ourselves and our children to ride or do 'okada' work".

Some of the children have become discouraged with the lack of employment opportunities upon completing school as there are no job opportunities to absorb them and would prefer offering their labour at the artisanal and small-scale mines as depicted in the statement:

"Some of the children want to stop school and do the mining activities because they see that those who have completed school before them have no jobs and are doing nothing. That was a waste of money by their parents to pay for their school fees."

Overall, while children's involvement in artisanal and small-scale mining activities provides short-term economic benefits, it poses significant risks to their health, education, and overall well-being. Efforts should focus on addressing the difficult working conditions for children in artisanal and small-scale mining through community-based and local regulations, including addressing poverty and lack of employment opportunities, to ensure the protection

and development of children in mining communities. Additionally, there is a need for robust regulation and enforcement to mitigate the harmful impacts of artisanal and small-scale mining on children and the environment.

4.5.3.4 Theme 4: Environmental and Land Degradation

The data highlights the significant environmental degradation caused by artisanal and small-scale mining activities, particularly in rural agricultural communities as mentioned by the men in the ranking and discussions in the research communities, photos taken from the direct field observations, and as also found out by Fayiah (2020). Artisanal and small-scale mining activities have led to the degradation of fertile farmlands, as evidenced by direct observations and portrayed in Figures 1 and 2. Moreover, pollution of water bodies has occurred, posing serious health risks to communities reliant on these water sources for household use (Ofosu, Dittmann, Sarpong & Botchie, 2020).

The environmental harm caused by artisanal and small-scale mining does not only affect agricultural productivity but also exacerbates vulnerabilities, particularly for women and children (Ofosu, Dittmann, Sarpong & Botchie, 2020) as culturally in Sierra Leone, they are responsible for collecting water for household use. As mining activities encroach upon agricultural lands, it disrupts the traditional livelihoods of communities, diminishing the complementary benefits from both artisanal and small-scale mining and rural agriculture. This disruption worsens food insecurity, particularly during the off-season when agricultural production is already limited and income from mining is dwindling. As a male participant stated:

"We sometimes lose our wives because they find it difficult to work on already mined land to produce crops and the yield is correspondingly low. They go to marry men in other towns where they still have good land and therefore good yields".

Besides land degradation causing food security at household and community levels, it leads to separation of families and divorces consequently when the women have to go the extra mile to put food on the table for the family. This increases the workload of already over-burdened women and children who traditionally have multiple roles of caring for the elderly, children and a host of other household chores.

Furthermore, the pollution of water bodies exacerbates health risks, leading to increased healthcare expenditure and absenteeism from school due to sickness (Ofosu, Dittmann, Sarpong & Botchie, 2020). The adverse effects of artisanal and small-scale mining on the environment directly impact on the well-being and livelihoods of women and children, who are often the most vulnerable members of these communities.

Addressing the environmental impacts of artisanal and small-scale mining requires robust regulation and enforcement at community level using a variety of strategies including incentive-based and coercive-based approaches to mitigate pollution and protect natural resources. Additionally, efforts should focus on promoting sustainable livelihood alternatives for affected communities, particularly women and children, to reduce their dependency on artisanal and small-scale mining and mitigate the associated vulnerabilities.

Figure 1
Land Degradation in Tombodu Community as a Result of Artisanal and Small-Scale Mining

Figure 2
Land Degradation in Small Sefadu Community as a Result of Artisanal and Small-Scale Mining

4.5.4 RQ4: How do social norms Work Against Women and Children in Mining Activities?

The low barriers to entry into artisanal and small-scale mining offer good opportunities for communities to raise income from these activities and assist in poverty reduction and wealth acquisition. This explains the involvement of so many women, men and children in these activities in the communities studied. However, such low barriers to entry and participation are

not equitably enjoyed by all community members and there are often some social norms, traditional belief systems and cultural practices that work against especially women and children which limit their benefits and increases their vulnerability in favour of men.

4.5.4.1 Theme 1: Limited Access to Land by Women and children

The results, as presented in Table 5, underscore the structural barriers faced by women and children in accessing land for mining activities in Sierra Leone, perpetuated by the prevailing land tenure system and entrenched social norms. Women are systematically denied the right to own or even utilize land for artisanal and small-scale mining, reinforcing their marginalised status within the artisanal and small-scale mining sector. Similarly, children are deemed ineligible to acquire land for mining purposes due to their age.

The denial of land is not only for artisanal and small-scale mining purposes but also for agricultural production and other purposes, in many instances. The denial of ownership of land to women and children has been in place for generations. It should however be noted that Sierra Leonean women have the formal rights to participate in land decisions, as enshrined by the policies and laws of the country (Millar, 2015) but these formal rights are not enforcible or acknowledged by the entrenched patriarchal institutions at the local levels such as the chiefs and and family heads. In Sierra Leone, women make up the bulk of small-scale food producers but continue to confront significant obstacles when it comes to their rights and access to land resources, while playing a crucial role in the food and livelihood security of their households and communities (Yengoh, Armah & Steen, 2015). Women's situation may worsen in several communities in Sierra Leone where extensive land acquisition is taking place by international multinational companies for various purposes such as large-scale mining and plantations development (Kainyande, Auch & Okoni-Williams, 2022; Menzel, 2019) in circumstances

where women are more reliant than males on land-based natural resources such as firewood, food crops and vegetables, that have a direct impact on the daily well-being of households. Consequently, men and women's incomes have significantly decreased as a result of land acquisitions by others outside of the community. When compared to men, the repercussions of women's declining income have a greater immediate and lasting impact on household well-being. Women's roles in rural cultures are complicated due to prevailing social and cultural norms, which puts them at risk for unfavorable livelihood processes and consequences related to denial of land acquisition. The significant role that women play in socio-economic and cultural development should be acknowledged, and their unique demands should be taken into consideration, while designing policy interventions aimed at addressing national and local issues.

As a result of this denied access to land, women and children are relegated to the status of casual daily wage earners, limiting their economic opportunities and autonomy (Hilson, Hilson, Siwale & Maconachie, 2018). Furthermore, they are excluded from benefiting directly from valuable mineral finds, as ownership rights typically reside with male mine owners, often foreign investors.

This systemic exclusion from land ownership and control perpetuates gender inequalities and intergenerational poverty cycles in mining communities. Without meaningful reforms to address these structural barriers, women and children will continue to be marginalised within the artisanal and small-scale mining sector, further exacerbating their vulnerability and dependency on exploitative labour arrangements. Therefore, policy interventions must prioritise equitable land tenure reforms and social empowerment initiatives to enable women and children to access and benefit from mining activities in Sierra Leone.

4.5.4.2 Theme 2: The Cultural Understanding of the Notion of Childhood and Gendered Stereotyping

The cultural definition of childhood in Sierra Leone, where male children as young as 13 are considered decision-makers and adults, if they have lost the father or both parents, presents a complex sociological landscape. This cultural framework, consistent with the new sociology of childhood theoretical framework, challenges conventional notions of childhood and adulthood.

Bolotta & Devine (2022) argue that the villagers in Sierra Leone do not view children's economic contributions to the household as "child exploitation," and it is difficult to characterise their participation as such. The analytical differentiation between play as a child's domain and work as an adult obligation stems from a specific comprehension of children's worth. They further contend that such differentiation first appeared in the capitalist economies of the Global North when compulsory education was introduced, solidifying the views of the middle class and upper class that education is the "real work of children." On the other hand, as work is a part of children's cultural tasks in Sierra Leone, work, play, and socialisation are deeply mixed realities in many rural environments.

Despite being legally prohibited from engaging in artisanal and small-scale mining activities, many children are compelled to do so due to assuming adult responsibilities as orphaned children and facing financial pressures to support their families, pay for their education and in some cases support their siblings or surviving parent. This underscores the intersection of socio-economic factors and cultural norms in shaping children's participation in artisanal and small-scale mining activities.

Furthermore, the cultural expectation for children to repay their parents for the care and resources invested in them, particularly in old age or poverty, further complicates the dynamics

of children working in artisanal and small-scale mining. Shepler (2014) notes that a child who does not work is viewed as a terrible child in rural Sierra Leone. In a similar vein, parents who do not teach their kids to work could be viewed as neglectful.

While legally children may be deemed too young for physically demanding tasks, such as the 'pass bucket' activity in mines, their societal obligation to support their families overrides these concerns, highlighting the intricate interplay between cultural norms and economic imperatives. Bolotta & Devine (2022) further report that in rural Sierra Leone, children are expected to assume tasks in the home and community as soon as they can walk, as part of a social structure that fosters interdependence and communal relatedness. In this setting, elders are customarily regarded as the guardians of the social order and the lineage's holy genealogy. The elders have as much power in the society as they do in the home when it comes to politics, economics, and education, and "good children" are supposed to honour, care for, and compensate elders for their sacrifices.

Similarly, gender dynamics play a significant role in structuring women's involvement in artisanal and small scale-mining activities. Women and girls are often relegated to domestic roles and deemed dependent on men, which limits their access to resources and opportunities for economic empowerment. From the interviews and focus group discussions, men see the responsibility of caring for the livelihoods of their families as theirs and women also see that responsibility as the husband's with their support. This gendered responsibility between a husband and wife is reflected in the statement from a male participant:

> *"The benefits I receive from the mining activities is the money I earn from there to take care of my family as the landlord. I have also been able to build a house from the earnings from my wage labour some of which I accumulated over a number of years.*

Other benefits include the skills that I have acquired from my involvement in the activities and have made friends at the sites that I am now comfortable discussing some issues with. I also managed to acquire my own mining tools to do the work without having to rent or borrow them from my colleagues".

The gendered power relations entrenched in societal norms and institutions perpetuate women's marginalization in the mining sector, reinforcing disparities in resource control and decision-making between men and women. Additionally, traditional marriage customs, where women typically move to their husband's community, further exacerbate women's vulnerability and restrict their access to economic, cultural, and social benefits. These power relations between men and women are further underscored by the below statement from a male participant:

"The money we get from our mining activities is sometimes used to marry our wives, give them small capital for start-up business and to educate our children"

These results underscore the need for a comprehensive understanding of the socio-cultural context surrounding artisanal and small-scale mining activities. Addressing the root causes of children's difficult working conditions and gender inequality in artisanal and small-scale mining requires targeted interventions that consider the intersecting dynamics of culture, economics, and gender relations. Policies and programmes aimed at promoting children's rights and women's empowerment must be culturally sensitive and contextually relevant to effectively address the multifaceted challenges faced by mining communities in Sierra Leone.

4.5.4.3 Theme 3: Women Restricted from Participating in Some Mining Activities

The traditional belief system and cultural practices in artisanal and small-scale mining communities pose significant barriers to the participation of women and children in mining

activities. These beliefs and practices, rooted in cultural norms and superstitions, perpetuate gender-based discrimination and restrict access to economic opportunities for women and girls (Muthuri, Abuya & Torres, 2022; Serwajja & Mukwaya, 2020).

Discussions from the focus groups and interviews overwhelmingly stated that women and girls are often excluded from mining sites due to beliefs that their presence can cause the disappearance of gold, diamond or other minerals, particularly if they have had sexual experiences or are menstruating. Menstruating women are considered as ‘unclean’ and likely to contaminate the environment in which the minerals are located. Similarly, the group discussions stated that a woman who has had sex in her life is no longer pure and therefore not desired to get near locations where the mining activities take place. This gender-based restriction has also been found by Muthuri, Abuya & Torres (2022) and Serwajja & Mukwaya (2020). Interestingly, a man who has had sex in his lifetime is not considered as ‘impure’, ‘adulterated’ or ‘immoral’ and can go about his mining activities without affecting the presence of the minerals. This exclusion and discrimination not only reinforce gender stereotypes but also limit the economic empowerment of women and girls in mining communities.

Similarly, in one of the research communities, children are discouraged from participating in artisanal and small-scale mining activities due to fears that exposure to money at a young age may lead to school dropout and engagement in risky behaviours such as prostitution as corroborated by Serwajja & Mukwaya (2020). This belief perpetuates intergenerational poverty and deprives children of opportunities for education, companionship and skill development.

As a participant portrayed:

"The women are not allowed to directly participate in the mining activities because the traditional beliefs do not allow that. If any women refuses and does direct mining activities they will be fined up to 100,000 leones for violating the traditional belief. Traditionally, it is believed that when women are involved directly in the mining activities when they are in their menstrual periods, the minerals vanish from the soil and no finds will be made. But for the reasons of concentrating in school, boys and girls would have been allowed to do the mining activities directly because they do not menstruate and are also innocent children who have not been involved in sex yet. Any girl who knows sex and has started menstruating will never be allowed into the mine pits to find gold or diamonds as that will spell doom for the miners because there will be no diamond or gold finds".

A woman or girl getting fined 100,000 leones is a lot of money in rural terms and symbolically also impinges on the image of the woman or girl while bringing shame to their family. The implications of these traditional beliefs and cultural practices are far-reaching, contributing to the marginalisation and vulnerability of women and children in mining communities. By restricting access to economic opportunities and perpetuating harmful gender norms, these beliefs hinder efforts to achieve gender equality and inclusive development in the mining sector.

Addressing these challenges requires concerted efforts to challenge and change deep-seated traditional beliefs and cultural practices. Community-based education and awareness programmes, coupled with targeted interventions to promote gender equality and child protection, are essential to overcome these barriers. Additionally, legal and policy frameworks

must be strengthened and enforced to protect the rights of women and children and ensure their equal participation and access to resources in the artisanal and small-scale mining sector.

This also explains the poverty and the difficult environment they survive in, without any consistent economic surplus. A few responses collected from the focus groups have also agreed that being continuously engaged at the mines is a great source of distraction from the domestic problems of these women and children, since it helps them stay away from the pain of their lives (Serwajja & Mukwaya, 2020). The information gleaned from the qualitative study shows that the children's parents and teachers have divergent views about their work. While parents may push their children to work in the mines to earn money, teachers generally discourage it in favour of academics which will pay off in the long term.

4.6 Discussion on Children's Drawings on Artisanal and Small-Scale Mining

In addition to the individual interviews and focus group discussions with boys and girls below the age of 18 years involved in artisanal and small-scale gold and diamond mining in the research communities, drawing was used as a participatory visual method for generating data and information for the research with children. When doing research with children, the extant literature warns against methods that constrain the expression of feelings or make them feel intimidated or pressurised (Literat, 2013). Each child was asked to make two drawings – one on what they liked about their involvement in the mining activities and the other on what they did not like about it. With their drawings, the children were able to express feelings, sentiments, and experiences about their involvement in the mining activities that were difficult to articulate in words but not equally difficult to recall as a physical and mental experience. These drawings complemented the individual interviews and focus group discussions held with them earlier.

Kampeza, & Delserieys (2020) note that "Children's 'voice' is not limited to written and oral communication, so drawing can provide opportunities for children to actively participate in knowledge construction and research" p. 105.

Participatory approaches have been overlooked as a means of revealing young children's potential to give rich and meaningful insights, as well as informing research into their lives. During the last few decades, there has been a growing interest in children's drawings as a participatory tool in telling their stories. Drawing as a meaningful process encourages youngsters to express themselves and adults to focus on their thoughts (Clark, 2017)

From the drawings, all the children portrayed money, in Figure 3 below, as what they liked about the mining activities. They also drew shovels, buckets and pick axes as what they did not like about mining as in Figure 4 below. Expatiating the meaning of the symbols used by the children, money was the main driver and motivation behind their participation in what can be referred to as tedious work for long hours in the rain or sun. The children explained that due to poverty of their parents they needed to undertake mining to earn some income to support their families and buy lunch at school. The boys indicated that mining was the only available income-generating activity in the communities as there were no other options. Some of the boys also narrated how they would not be in school without their participation in the mining activities as they needed the money not only for lunch but to buy books and pay for other school user fees and also to buy personal items such as clothing and bicycles.

The girls portrayed the same reasons for their involvement in the mining activities but also added that without income from the mining activities, they would not go to school when they were menstruating because they did not have 'dignity kits' to use and it could sometimes embarrass them in class when they started to menstruate. Not being able to afford dignity kits

made them resort to other unsanitary practices such as the use of unclean rags that could infect them. In addition, the money they earned helped their mothers to buy soup ingredients to cook for the family. The orphaned boys and girls said they used every available time when not in school to do the mining as they had to support their siblings and sometimes the surviving old or sick parent.

Both boys and girls indicated that any time the group working in the mines found pieces of gold or diamonds, it brought them joy as they knew their wages would be paid promptly for that period. However, they indicated that any find of gold or diamonds went directly to the financier who leased the land and they had no share in the proceeds from the find except the little wages they earn on a daily basis.

What is disliked about their involvement in mining was depicted in the drawing in many ways. The boys indicated they did not like the small daily wages paid them for the hardwork they did for long hours in the sun with pickaxes, shovels and buckets as in Figure 4 below. Some indicated that the scorching sun hurt their backs and made them sick at the end of the day and that the 'pass bucket[9]' work was very tedious for them because the buckets were filled with wet sand and were heavy for them to pass around. Others detested the injuries they got when mistakenly a heavy bucket filled with wet sand fell on their feet. Such injuries not only made them spend the meagre wages they got from the mining activities on medicines but kept them away from school for long periods of time. Others did not like the danger of falling into

[9] Pass bucket is the name used for passing a bucket filled with soil suspected to contain gold or diamonds that is scooped from the mining pit and passed from one person to the other until it reaches the sieve used for washing the soil to see if it contains the gold or diamonds.

uncovered pits left behind after mining as stagnant water on the ground could be deceptive and appear as being shallow but could be several feet deep and falling into them posed a grave danger of being drowned.

The girls narrated aspects of mining that they did not like similar to those of the boys but added that because of their physiological make up, they are weaker than the boys but have to pass the same weight of bucket filled with wet sand round with the boys, and this was quite tedious for them. They also detested receiving smaller daily wages than the boys. They received 20,000 to 25,000 leones while the boys received between 25,000 to 30,000 leones for doing the same job. The drawing by the girls further depicted men and boys physically touching them, which may be interpreted as harassment or sexual abuse which could lead to teenage pregnancy and/or school dropout.

These drawings were a significant technique for children to express their thoughts and ideas in a visual-graphic form. It reflected the children's interests and goals and therefore conveyed meaning in a form they felt appropriate as seen in how the boys and girls in the research communities were able to convey their thoughts and ideas. According to Fabris, Lange-Küttner, Shiakou & Longobardi (2023) children's drawing serve as a cultural transfer of their everyday knowledge, imagination and imagined meanings, in this case what they liked or did not like about their involvement in artisanal and small-scale gold and diamond mining. The drawings have helped the researcher to understand the children on their own terms about the mining activities in addition to the outputs from the discussions and interviews.

Figure 3

What the Children Like About Being Involved in Artisanal and Small-Scale Mining

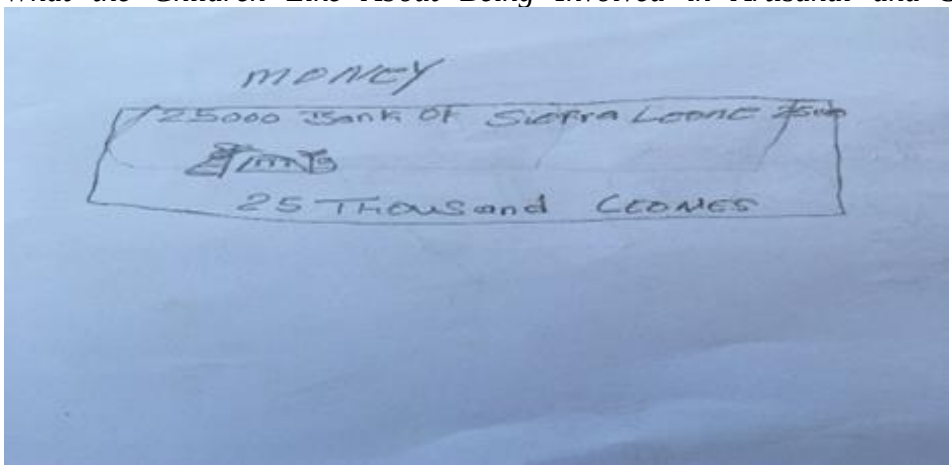


Figure 4

What the Children Do Not Like About Artisanal and Small-Scale Mining

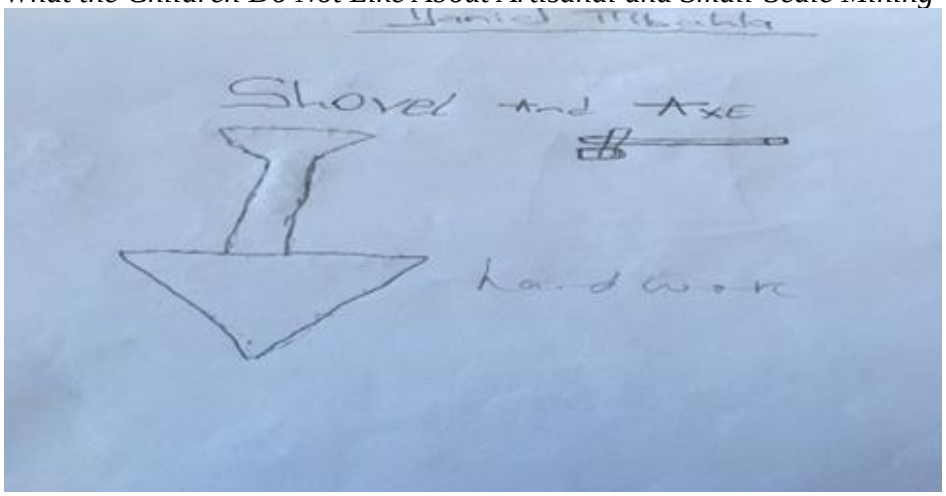


Table 6

Expenditure of Children in Artisanal and Small-Scale Mining (N=50)

Type of Expenditure	(% of children interviewed)
Education Materials (books, pens, exam fees, etc)	70
School lunch and pocket money	60
Contribution to family	60
School uniform and other clothes	60
Medicines for injuries and pains	20
Dignity kits (for girls)	10
Other household or personal needs	40

Source: Interviews of Children in Research Communities, July 2022

4.7 Children's Expenditure Pattern and Discussion

In a separate discussion with the 25 children in the three research communities who participated in the research regarding what the money earned from their participation in artisanal and small-scale mining was used for, as in Table 6 above, (also graphically represented by Figure 5 below) gives an idea of the expenditure pattern of the children. Social norms were cited as the primary driver of the children's employment in the artisanal and small-scale mining activities, after poverty. Compared to other households in the mining communities, the households of these children are typically poorer, have more children, have a higher likelihood of having an adult working in the mines, experience more anxiety and reside closer to a mining site.

As seen from the data, 70% of both boys and girls indicated that they spent part of the earnings on school-related costs. These included buying of notebooks, textbooks, pens, pencils and other writing materials. Other costs included payment for 'mock' exams prior to holding the proper Basic Education Certificate Examination (BECE) or West Africa School Certificate Examination (WASCE) or paying for the accommodation and feeding during camping of final year students to prepare them for such final examinations. These are costs outside of the government's free quality education examination allocations, and present significant costs to parents, most of whom live below the poverty line.

One of the big expenditures, of up to 60% from the income of children involved in artisanal and small-scale mining was providing lunch for themselves and pocket money for other small needs during school days, especially on days that they did not have breakfast to eat before going to school. Contact hours in school last for more than 6 hours in a school day necessitating the school children to buy food before going home to the next meal which is

probably not available or dinner late in the evening. In order to stay focused to the teaching provided at school they needed not to be hungry as this could serve as a source of distraction to their studies.

Another significant expenditure was the 60% contribution from the mining income that these children working in the artisanal and small-scale mining made to their families for household expenditure including food, health, clothes etc. As has been indicated earlier and severally in this study, poverty is rife in many of these communities and parents whose responsibility it is to provide for household livelihoods are simply unable to adequately do so as a result. Parents therefore asked for financial contributions from the working children towards family sustenance, which was sometimes a lifeline to the existence of that family. Children also saw it as an obligation and honour to support their parents in times of need which was one of the inducements of children's involvement in artisanal and small-scale mining in the research communities.

School informs for children in school was one of the needs promised under the free quality education system in the country. However, the provision of these has not been largely met, especially in the rural areas; and where they are provided the children have to pay for them at what is termed 'subsidised costs'. These 'subsidised costs' can constitute a big chunk of family expenditure in rural areas, and up to 60% of children's income from mining given the poverty levels, and as one of the key materials needed by children to be in school, it is therefore essential that the school children acquire them. In some situations, given that most rural roads are not paved and classroom blocks are not as decent as those in urban locations, these uniforms become dirty during the course of wearing them continuously daily for 5 days thus

necessitating the procurement of more than one pair of uniform for both boys and girls, hence significantly increasing the costs.

Other household or personal needs constituted 40% of total expenditure earned by children in artisanal and small-scale mining. These came in addition to the contribution to the family for food and included unexpected expenditure resulting from the death of a close relative, sudden and unplanned travels of family members and other emergencies. The personal needs included recreation materials such as footballs, or saving to buy a bicycle to use for school and other personal needs besides clothes.

An important expenditure for girls, even though it looks small of being only 10%, is on dignity kits. Dignity kits are materials needed for the monthly cycle of menstruation. Menstruation periods are very important for the girls as it can embarrass them while in school or prevent them from going to school if they did not have them. Many of the girls indicated that in addition to the uniforms and other related school costs, dignity kits were very important and some of them resorted to using unsanitary materials if they could not buy dignity kits. This has the propensity of infecting them and causing debilitating harm. The second reason for the importance of dignity kits was that, according to cultural practices, girls cannot go to the mines if they are experiencing their monthly menstruation and have to stay at home. As working in the mines was usual for many of the children, any girls staying back at home for a few days could easily be distinguished as being in their menstrual period. It is therefore during this period that dignity kits were also important as everyone will be looking up to them to see any signs of change in walking or attitude, and with dignity kits such awkward signs may not be noticed and therefore staying at home may be viewed by others as being due to sickness or other reasons.

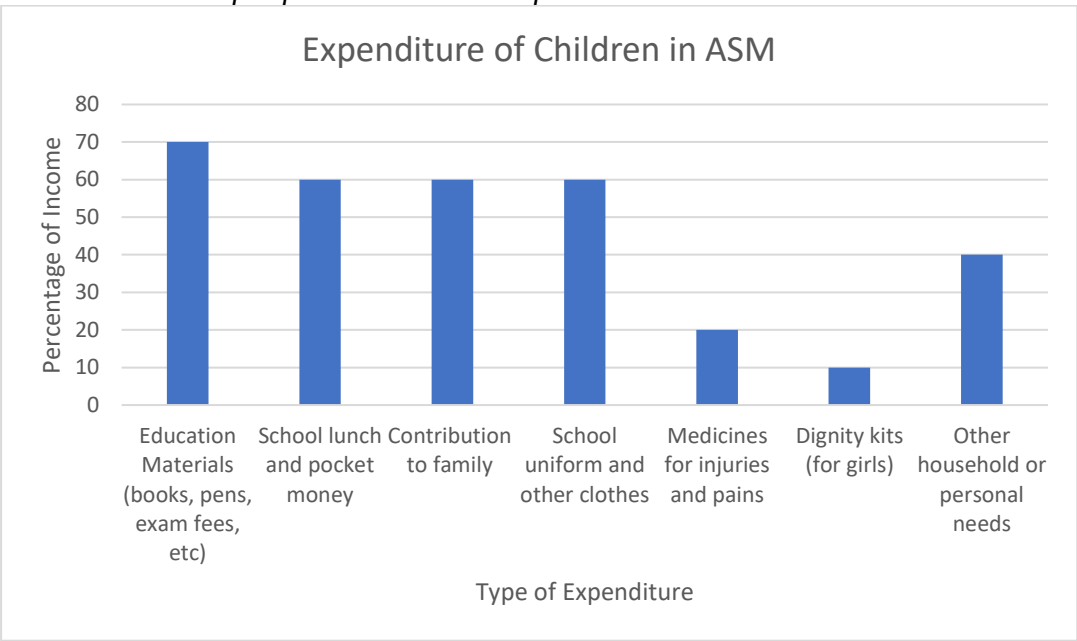
Up to 20% expenditure of the children's mining income was spent on medicines to alleviate the pains and injuries that they suffered being part of the artisanal and small-scale workforce. The children indicated that the 'pass bucket' work is strenuous and gives tham all sorts of pains, especially the girls, after work. In some instances, they got injured if the bucket filled with the mineral-bearing sands mistakingly fell on their feet due to mishandling. Injuries and pains, they said, were the biggest cause of school absenteeism and not their involvement in the mining tasks themselves.

The expenditure pattern portrayed here demonstrates the importance of the income that the children earn from participating in the artisanal and small-scale mining activities. In communities where there are very few livelihood options to turn to and where poverty is almost endemic for most parents, the financial contribution of children to their families and on essentials for them is very important for the economic well-being of their families and supporting them to stay in school and without such income, it is most likely that many of these children would have dropped out of school. In fact, over 75% of all income from mining is used on education-related expenditure underscoring the importance of such income to the children.

It is therefore necessary to promulgate and promote policies and laws that will refine the type of activities that these children are engaged in the artisanal and small-scale mining sector to reduce risks for them to realise the full benefits of it devoid of exploitation and abuse rather than think of eliminating the involvement of children in artisanal and small-scale mining as that is noy likely to happen anytime soon unless the causal circumstances in which these children find themselves are completely eliminated.

Figure 5

Graphical Presentation of Expenditure Pattern of Children



4.8 Evaluation of the Findings

The findings of this research are valuable in contributing to new insights into the phenomenon of artisanal and small-scale mining in Kono and Bo districts of Sierra Leone. While previous studies into artisanal and small-scale mining have been done on various topics in a number of locations in Sierra Leone (Ankenbrand, Welter & Engwicht, 2021; Conteh & Maconachie, 2021; Hilson & Maconachie, 2020; Ibrahim, Rutherford & Buss, 2022; Leone, 2021; Maconachie & Conteh, 2021) to name but a few, an evaluation of this research on the effects of artisanal and small-scale mining on women and children collectively in Kono and Bo districts offers additional knowledge that was not previously strongly conveyed in earlier scholarships or offer new perspectives in the sector on vulnerabilities and experiences of women and children, previously held views on working children, cultural practices, traditional belief systems and gendered institutions and how these manifest themselves in the economic

and socio-cultural dynamics of women and children's involvement in artisanal and small-scale mining play at the household and community levels. The evaluation of these findings begins with the linkage of the findings to the theoretical frameworks that informed and influenced the analysis and proceeds with how the findings are evaluated on the research questions.

4.8.1 Evaluation of how Perceptions and Experiences of Vulnerability Feed into the Experiences of Women and Children Involved in Mining Activities

The findings on perceptions and experiences of vulnerability and how they feed into the involvement of women and children in artisanal and small-scale mining present interesting interpretations. The participant's statements in the findings highlight several risks and challenges associated with engaging in the mining activities, including interpersonal conflicts, physical injuries, and fatalities. These risks encompass various aspects of mining, such as tunneling under trees, using heavy tools, and working in unstable pits, both on land and underwater. Additionally, the participants mentioned the disappointment of returning empty-handed and the financial dependency on finding valuable minerals to earn income. The vulnerability and perceptions of the women and children involved in artisanal and small-scale mining in the research communities agree with those of Schwartz, Lee & Darrah (2021) and Wireko-Gyebi, Arhin, Braimah, King & Lykke (2022) who corroborate the participant's account by emphasising the dangers and hazards prevalent in mining environments. These risks include accidents, injuries, and fatalities resulting from working conditions, equipment usage, and environmental factors. Moreover, the competitive nature of mining, as highlighted by the participants' mention of contesting for space and finds, aligns with the findings of scholars who discuss the social dynamics and conflicts within mining communities (Schwartz, Lee & Darrah, 2021). Overall, the participants' narratives underscore the critical need for safety measures,

regulation, and support systems to mitigate the adverse effects of artisanal and small-scale mining activities on women and children's well-being and livelihoods.

Other participants highlight several negative aspects of mining, including exploitation, dangerous working conditions, inadequate compensation, and physical hardships. The lack of ownership or control over the mined resources, coupled with the absence of profit-sharing mechanisms, contribute to the feeling of exploitation among miners, especially women and children. Additionally, the participants underscore the risks associated with manual labour, such as injuries from tools and the potential collapse of mining pits, further emphasising the hazardous nature of the artisanal and small-scale mining activities. These concerns align with the findings of Rosales (2019) and Schwartz, Lee & Darrah (2021), who discuss the exploitative practices and unsafe working conditions prevalent in the artisanal and small-scale mining industry. These scholars highlight the unequal distribution of benefits and the disproportionate risks borne by miners compared to mine owners or investors. Furthermore, participants' testimonies on the lack of protective measures and inadequate compensation for work-related injuries underscore the systemic challenges faced by miners (Schwartz, Lee & Darrah, 2021). The participants' narratives stress the urgent need for regulatory reforms and improved safety standards to address the exploitative and hazardous conditions prevalent in artisanal and small-scale mining operations.

Omotehinse & Ogunlade (2022) and Osei, Yeboah, Kumi & Antoh (2021) support the notion that artisanal and small-scale mining activities serve as a means of economic support for families, including meeting basic needs and investing in businesses and education. Similarly, Hilson & Maconachie (2020a) highlight the role of mining in providing alternative livelihoods, acquiring skills, and fostering community development. Moreover, Arthur-Holmes

& Busia (2022) and Arthur-Holmes & Busia (2020) emphasise the significance of mining in reducing dependency and providing social connections within mining communities for women and children. However, Lahiri-Dutt, Amor & Perks (2021) caution against the negative consequences of mining on health, social dynamics, and environmental sustainability. Overall, the data indicates that while artisanal and small-scale mining offers economic opportunities, its impact on communities requires careful consideration to mitigate adverse effects and promote sustainable development.

These findings are supported by the theoretical frameworks for this study. The gender framework supports the gendered division of labour that weighs heavily against women who perform tasks sometimes similar to those of men and yet receive less benefits than men. The ascription of roles along gender lines can exacerbate vulnerabilities of women involved in artisanal and small-scale mining activities and negate the gains made by the income they receive.

The research participants expose that women are vulnerable to food insecurity as a result of poor yields from degraded soils due to artisanal and small-scale mining activities. Food insecurity at the household level increases vulnerability of women who are sometimes compelled to divorce their husbands and look for new ones if the income from the artisanal and small-scale mining activities is not adequate to cater for household food. This situation highlights the symbiotic nature of smallholder farming and artisanal and small-scale mining and the fact that dwindling finds may not hold this symbiosis much longer if alternative livelihood options are not explored.

4.8.2 Evaluation of How Women and Children Experience Greater or Less Forms of Vulnerability within Mining Communities

The quotes from the participants of the research reveal the pervasive gender and generation dynamics within artisanal and small-scale mining communities, where men predominantly engage in physically demanding mining activities while women and children support them directly or indirectly. These roles are influenced by cultural norms and societal expectations, contributing to the marginalisation of women and children. The physical toll of mining, such as sight and hearing problems, accentuates the health risks faced by artisanal and small-scale miners. Moreover, the lack of knowledge about mineral prices and exploitation by investors exacerbate the economic hardships faced by miners, especially the women and children whose wages depend on such prices. Despite historical benefits like income generation for education and community development, mining activities have negative consequences on familial relationships, education, and health, exacerbating vulnerabilities. These findings align with Lawson (2018) and Rutherford (2020), who document the gendered division of labour in artisanal and small-scale mining communities and the historical significance of mining as a source of income but with debilitating consequencies. Additionally, De Haan, Dales & McQuilken (2020), Conteh & Maconachie (2021), and Schwartz, Lee & Darrah (2021) highlight the adverse effects of mining on the enviornment, health, and social dynamics. Moreover, Baffour-Kyei, Mensah, Owusu & Horlu (2021) stress the detrimental impact of artisanal and small-scale mining on familial relationships and community well-being. Overall, the data elucidates the multifaceted challenges faced by artisanal and small-scale mining communities, underscoring the need for holistic interventions to address socio-economic disparities and promote sustainable development.

The additional testimonies from the research participants highlight various motivations and benefits associated with engaging in artisanal and small-scale mining activities, including economic sustenance, fulfilling familial responsibilities, acquiring skills, and contributing to community development. Additionally, artisanal and small-scale mining provides opportunities for social interaction and reduces dependency on others. However, it also exposes miners to health risks and perpetuates gender roles within the community.

The data from participants also reflect the financial strain and debt accumulation experienced by individuals engaged in mining activities, especially women and children who can turn to fewer sources and options of financial support given societal norms that they already face. Despite their efforts and hard work, the unpredictable nature of artisanal and small-scale mining outcomes often leads to disappointment and financial insecurity. This cycle of borrowing to sustain daily needs in anticipation of future finds perpetuates a vicious cycle of debt and economic vulnerability. Rosales (2019) and Schwartz, Lee & Darrah (2021) support the participant's account by highlighting the prevalence of debt as a significant challenge faced by individuals involved in artisanal and small-scale mining. This financial burden arises from the irregular and uncertain income generated by artisanal and small-scale mining activities, which often fails to meet the financial needs of miners and their families, together with complex labour arrangements that make the women and children dependent on the financiers and mine owners. Moreover, the absence of protective policies, measures and inadequate compensation for the risks and hardships endured further exacerbate the financial difficulties faced by artisanal and small-scale miners (Rosales, 2019). Overall, the data and participants' narratives underline the urgent need for improved working conditions, fair compensation, and access to

financial resources to alleviate the financial burdens associated with mining activities for women and children particularly.

The data reflect the complex dynamics surrounding children's involvement in artisanal and small-scale mining activities. While parents may encourage their children to work in mines due to financial constraints and the need for immediate income, teachers often advocate for education and discourage mining, or at best are silent, to ensure children's long-term well-being. However, the financial necessity often outweighs the educational aspirations, leading children to give equal priority to earning income from artisanal and small-scale mining and attending school. The participants mentioned dropping out of school due to financial constraints highlights the significant impact of poverty on educational opportunities among children in artisanal and small-scale mining communities.

Gatsinzi & Hilson (2022) shed light on the conflicting perspectives of parents and teachers regarding children's involvement in artisanal and small-scale mining activities. While parents may view artisanal and small-scale mining as a means of financial support to the family and the child, teachers prioritise education over work and advocate against children working in mines. Maconachie & Hilson (2016) further support the participants' account of the importance of income from mining by highlighting the financial challenges faced by children in artisanal and small-scale mining communities, which often result in dropping out of school due to the inability to afford school fees. The data underscores the urgent need for comprehensive support systems and interventions to address the underlying socio-economic factors driving children's involvement in artisanal and small-scale mining activities in rural communities in Sierra Leone.

The data and participants' testimonies also highlight the dilemma faced by children torn between the necessity of earning income from artisanal and small-scale mining activities and the desire to pursue education. Despite both happening concurrently and the teachers' opposition to their involvement in artisanal and small-scale mining activities, children feel compelled to continue mining to sustain their schooling and support their families financially. The participants' assertion that mining does not significantly affect school attendance suggests that children attempt to balance work and education by engaging in artisanal and small-scale mining only during non-school days. From the discussions with children themselves and adults in the research communities, it is not the time used by children in artisanal and small-scale mining that results in absenteeism or dropping out of school. Rather, injuries, pains and sickness from mining activities and sometimes the stigma that goes with being abused in the mines are the drivers of school absenteeism; and for girls the inability to afford dignity kits is additional. If proper regulations, mechanisms and monitoring are put in place at the local levels to address the issues related to their involvement, absenteeism and dropout rates will significantly scale down.

The data resonates with Maconachie & Hilson (2016), who noticed the challenge of balancing work and education among children involved in artisanal and small-scale mining activities in Sierra Leone. The children's mention of parental indifference or encouragement regarding their involvement in artisanal and small-scale mining activities further underscores the complex socio-economic dynamics at play. Overall, the participants' account highlights the competing priorities and challenges faced by children navigating the intersection of work and education in mining communities.

The data also exposes the exploitation and harassment faced by artisanal and small-scale mine workers at the hands of mine officials and law enforcement officials. The pervasive corruption within the mining sector (Dupuy, 2017) largely due to lack of regulation, illegality, and unclarity regarding roles of responsible institutions highlighted by the extortion of money and confiscation of finds and tools by authorities (Albrecht, 2019), exacerbates the already precarious working conditions of mine workers. Additionally, the participants highlight the role of what the researcher will term 'petty jealousy and destructive competition' among competitors, leading to the betrayal and loss of valuable finds, further underlines the hostile environment in which mine workers operate. Hilson & Hu (2022) corroborate the participants' experience of harassment by mine officials and police, highlighting the systemic issues within the artisanal and small-scale mining sector. Stoudmann et al. (2021) also shed light on the interpersonal dynamics of jealousy and competition among mine workers, which contribute to the challenges faced by individuals engaged in artisanal and small-scale mining activities. The data accentuates the urgent need for regulatory reforms and accountability mechanisms to address corruption and safeguard the rights and livelihoods of mine workers. The evaluation of these findings resonates with and are supported by the gender theoretical framework which sees the gendered labour divisions in artisanal and small-scale mining as being unfair and exploitative to women who are normally given routinely lowly paid tasks and as well occupy the lower levels of management of the activities. The situation also gets inspiration from the parental characteristics framework which attributes the difficult choice of working in the mines by children to the economic, educational and skills capacities of their parents, while the new sociology of childhood explains the obligation of children to support their families financially and pay for the education as active agents of society.

4.8.3 Evaluation of The Impacts of Working Within Mining Activities for Women and Children

The research data highlights the primary motivations behind engaging in artisanal and small-scale mining activities, which are to earn money for survival and meet basic needs such as clothes, children's education, health and shoes. It underscores the economic necessity that drives individuals, particularly children, to participate in mining activities despite the associated risks and challenges.

This data provides insights into the adverse economic impact of dwindling gold and diamond finds on the education of child miners. It illustrates how the decline in mineral resources has led to economic hardship, resulting in dropout rates among children who rely on mining income to fund their education. Additionally, the involvement of investors further exacerbates the financial strain on child miners, as they are left with minimal returns after the investors cover their expenses, which demonstrates the exploitative labour relations and the lack of certainty in income earning in artisanal and small-scale mining for waged workers.

Gatsinzi, Kumah, Hilson & Quaicoe (2020) and Hilson & Maconachie (2020b) corroborate the findings that artisanal and small-scale mining activities serve as both a source of income and a barrier to education for children in mining communities. They emphasise the complex relationship between mining livelihoods and educational outcomes, wherein economic imperatives often outweigh the pursuit of education. The data and participants' testimonies highlight the systemic challenges faced by child miners, including inadequate support from parents, poor school facilities, high cost of user fees, high unemployment of educated youth exacerbated by exploitative labour arrangements with investors, as also found out by Ibrahim, Rutherford & Buss (2020) and Owusu, Afrifa & Obeng (2022). These references stress the urgent need for interventions to address the root causes of difficult working

conditions for children in artisanal and small-scale mining and improve access to quality education for affected children. Table 6 below demonstrates a typical example of how children use the income they earn from participating in artisanal and small-scale mining activities, without which life would have been hard for them and their families and could probably lead to increased school dropout rates for both boys and girls in artisanal and small-scale mining communities.

The findings of this research also align with Lawson (2018) and Rutherford (2020), who document the gendered division of labour in mining communities and the historical significance of mining as a source of income. Additionally, De Haan, Dales & McQuilken (2020), Conteh & Maconachie (2021), and Schwartz, Lee & Darrah (2021) highlight the adverse effects of mining on education, health, and social dynamics. Moreover, Baffour-Kyei, Mensah, Owusu & Horlu (2021) underscore the detrimental impact of artisanal and small-scale mining on familial relationships and community well-being. Overall, the data elucidates the multifaceted challenges faced by mining communities, highlighting the need for holistic interventions to address socio-economic disparities and promote sustainable development.

The data and participants' statements highlight the disillusionment and despair among children who perceive education as futile due to the lack of employment opportunities upon graduation, experienced by youth who completed school before them. The intergenerational cycle of poverty and unemployment perpetuates the belief that investing in education yields minimal returns, prompting some children to opt for immediate income-generating activities such as mining. The participant's characterisation of education, at high costs and for long periods of a child's time, as a wasted investment reflects the systemic failures to provide avenues for economic advancement beyond formal schooling. This generalisation on the

limited usefulness of formal education stems from the situation where very few citizens, particularly women, of these communities serve as role models for children by exhibiting the worth of education through success in decent employment or business (UNGEI, 2023). O'Neill (2014, p.) argues that in Sierra Leone, "the more children that are educated, the more that can get better jobs and contribute to businesses and government, perhaps creating urbanisation and economic growth, as well".

Arthur-Holmes, Busia, Vazquez-Brust & Yakovleva (2022) provide context to the participants' observation, elucidating the broader socio-economic factors driving children's entry into artisanal and small-scale mining activities. The lack of viable alternatives to artisanal and small-scale mining exacerbates the attraction of mining as a monopolistic source of rural income for marginalised youth. The participants' narratives on children considering dropping out of school to pursue full-time mining activities due to joblessness after completing school emphasise the urgent need for holistic approaches to address youth unemployment and create sustainable livelihood opportunities outside of the mining sector.

4.8.4 Evaluation of How Social Norms Work Against Women and Children in Mining Activities

The participants' account of women not allowed to directly participate in the mining activities exposes the deeply entrenched gender discrimination and harmful traditional beliefs that restrict women's gainful participation in artisanal and small-scale mining activities. The imposition of fines and punitive measures against women who defy these norms perpetuates gender inequality and reinforces the marginalisation of women within the mining sector. Moreover, the participant's reference to menstrual taboos reflects the pervasive myths and superstitions that serve to justify the exclusion of women from the artisanal and small-scale mining activities, further engraining gender-based discrimination.

The participants' narratives and results align with the findings of Arthur-Holmes & Busia (2020) and Hilson & Maconachie (2020b), which highlight the gendered dynamics of participation in mining activities shaped by traditional beliefs and cultural norms. The systematic exclusion of women from lucrative tasks perpetuates gender disparities and limits women's economic opportunities in artisanal and small-scale mining communities. The participants' account stresses the urgent need for gender-sensitive interventions and advocacy efforts to challenge deep-rooted discriminatory practices and promote gender equity within the artisanal and small-scale mining sector.

The evaluation of these findings provides an illumination of the systemic challenges and injustices faced by women and children involved in arisanal and small-scale mining in the research communities. The participants' testimonies shed light on the pervasive corruption and exploitation perpetuated by mine officials and law enforcement, leading to extortion, harassment, and the confiscation of tools. Moreover, the narratives unveil the grim realities of intergenerational poverty and unemployment, wherein children perceive education as a futile investment due to the lack of viable employment opportunities post-graduation, thus opting for immediate income-generating activities like mining. Additionally, the findings expose the deeply entrenched gender discrimination and harmful traditional beliefs that marginalise women and children within the artisanal and small-scale mining sector, illustrating the urgent need for regulatory reforms, socio-economic interventions, and advocacy efforts to address them, create sustainable livelihood opportunities, and promote gender equity within mining communities.

A surprising finding which will require more in-depth study is the paramount importance of children's involvement in artisanal and small-scale mining to their education,

without which they would have dropped out of school. This finding is contrary to the widely held view by the UN agencies and some international non-govermental organisations that there is a binary between being in school and participating in artisanal and small-scale mining but not both. The evidence from this study interestingly changes this narrative and education and artisanal and small-scale mining activities can mutually and beneficially co-exist.

The findings of the study illuminate the challenges faced and benefits attained by women and child artisanal and small-scale miners in two districts of Sierra Leone. The research questions were tailored to specific groups and individuals, enabling an in-depth exploration of the effects of mining on women and children, drawing on motivations from the theoretical frameworks for the research.

4.9 Linkage with Theoretical Frameworks

Three theoretical frameworks informed and guided the research on the effects of artisanal and small-scale mining on women and children in Kono and Bo districts of the Republic of Sierra Leone. These are the gender theoretical framework, which examines the behaviours and attitudes of men towards women and gender disparities (Belotto, 2018) in the tasks and activities; the parental characteristics framework, which explores reasons for children's involvement in artisanal and small-scale mining; and the new sociology of childhood framework, linking societal and cultural definitions of childhood to mining activities (Stahl & King, 2020).

4.9.1 Linkage with the The Gender Theretical Framework

The gender theoretical framework, which seeks to explain the social ascription of roles and responsibilities between women and men informs the findings of this research. Arguably, one of the biggest obstacles to participation in artisanal and small-scale mining leadership is

power and gender dynamics. Scholarly literature generally acknowledges that responding to the consequences of power and gender dynamics is a prerequisite for addressing the gender disparities in the sector. Power and gender dynamics cause humans to face several leadership obstacles, which in turn impact women's motivation to assume leadership roles and their leadership styles (Masajja, Nankwanga & Nsibirano, 2021).

The findings of this study demonstrate how norms, cultural practices, traditional beliefs are reinforced by gendered instutions to create, strengthen and rarely challenge gender relations in artisanal and small-scale mining in the research communities and by extension, Sierra Leone and other Sub-Saharan African countries. According to Danielsen & Hinton (2022) and Buss & Rutherford (2022), the gender dynamics has largely to do with gender relational issues in artisanal and small-scale mining in a) how labour is divided b) control of and access to productive resources and other benefits, c) decision-making and decision-making processes and d) norms. These are amply manisfested in the findings from the interviews, focus group discussions and the thematic analysis of the data collected.

In artisanal and small-scale gold and diamond mining in Kono and Bo districts, labour is divided between male and females along gender lines, with the males maintaining the tasks and responsibilities that are well earning while the women are given taks that are routine and less paying. According to Artur-Holmes (2021), this gendered division of labour in artisanal and small-scale mining strengthens inequalities and limits women’s opportunities in their participation in artisanal and small-scale mining, and gives the power to men to be involved in the more lucrative tasks such as the extraction and processing of the minerals

The study reveals that children and women in the mines receive lower wages than their male counterparts, with men typically owning land and houses, consistent with findings in Sub-

Saharan Africa and the Tonkolili district of Sierra Leone (Hilson, Hilson, Siwale & Maconachie, 2018; Ibrahim, Rutherford & Buss, 2022). This disparity underscores the gender framework's relevance in understanding artisanal and small-scale mining workforce dynamics. Men's participation in lucrative mining roles is higher than that of women and children, yet the latter groups contribute significantly to household incomes, corroborated by studies in Ghana and Tanzania (Arthur-Holmes & Busia, 2020; Potter & Lupilya, 2016). This highlights the need for governmental intervention to provide viable alternative livelihoods, as also evidenced by findings in Ghana and Guinea (Kumah, Hilson & Quaicoe, 2020; Huntington & Marple-Cantrell, 2022).

The women from the Tombodu group advocate for improved agricultural opportunities and those from Small Sefadu and Gollu want the government to provide them loans for other income-generating activities such as petty trade as alternative livelihood ventures in order to curtail their involvement in the artisanal and small-scale mining activities. This is because despite their significant contributions, they face disrespect and sexual exploitation from mine owners, similar to findings in Zimbabwe and Uganda (Makaza & Chimuzinga, 2020; Muheki & Geenen, 2018). While the income helps cover children's school fees, benefiting their futures, women endure discrimination in pay and working conditions, making their labour more arduous. Therefore, other livelihood opportunities from the government will make them independent and eliminate the discrimination and abuses they go through in the mines.

Mining assets are predominantly controlled by men, negatively impacting women and children's working conditions, a pattern also observed in Kenya and Mali (Buss, Katz-Lavigne, Aluoka & Alma, 2022; Brottem & Ba, 2019), and familial desperation drives children's involvement in mining, with parents showing indifference, a situation similarly found in the

Democratic Republic of Congo (Andre & Godin, 2014; Zvarivadza & Nhleko, 2018). The new sociology of childhood framework provides insights into cultural and habitual factors influencing children's participation in mining, noting the detrimental impact of abusive language and behaviour from mine owners on children's mental well-being (Buss, Rutherford, Sebia-Zziwa, Kibombo & Kisekka, 2017).

In the research communities, women's access to and benefit from resources, including financial resources, such as the ability to own and manage land resources, improved technological utilisation are essential in dealing with the gender gap in access to and control of productive resources that they face in artisanal and small-scale mining as confirmed by Buss, Rutherford, Kumah, & Spear (2021).

Related to the gender division of labour and access to and control over resources in artisanal and small-scale mining is the dimension of decision-making and decision-making processes between men and women. The findings from the interviews overwhelmingly describe a situation where all decisions and the process of making those decisions are with the male miners and owners of the financial resources, the land, tools and rights to mine, to the exclusion of the female miners who are only waged labourers. These decisions and processes include how much wages to pay, who should be recruited as daily labourers, who performs what tasks and the appropriation of proceeds from finds.

Danielson & Hinton (2022) found out in the Great Regions of Africa that gender relations are social relations of power, which means that power is a relational social issue rather than an individual one. People who possess power have the authority and capacity to take action and this power may be divided into two categories: power over (capacity to influence others) and power to (capacity to act). Such power is also about decisions made on the employment of

women in artisanal and small-scale gold and diamond mining and their earnings. The dimension of the decision-making itself is closely linked to power over and power to, since power relations in artisanal and small-scale mining households and communities can be strengthened by gender norms. Since control over resources and benefits refers to having the authority to determine how they are used, it is also connected to the dimension of decision-making and the processes to arrive at these decisions. In the artisanal and small-scale mining communities in Kono and Bo, decisions and decision-making processes have been greatly skewed in favour of men and to the disadvantage of women, implying that benefits from such decisions mostly benefit men and women are almost always the losers in such decisions. The gender theoretical framework assists in explaining this situation of affairs at the mine sites.

Norms, cultural practices and traditional beliefs in the mining communities influence the labour division between men and women in the mining communities. Generally, in Sierra Leone, as Ibrahim, Rutherford & Buss (2022) observe, women's rights are frequently restricted in the name of "culture" or "tradition," and in a way that reinforces their subordination or subservience to men, since women are typically excluded from decision-making and expected to be subservient to men. The access that Sierra Leonean women have to economic empowerment, health care, and education has been severely hampered by these forms of structural violence.

Danielsen & Hinton (2021) in their extensive work on women and social relations in artisanal and small-scale mining in the Democratic Republic of Congo, demonstrated that gender norms, as in many other endeavours in rural communities, often has a large influence on women’s access to and control over resources and benefits, decision-making at the mines and the gender division of labour. In their findings, they note that lucrative tasks in the

extraction activities of artisanal and small-scale mining are sometimes considered as "masculine," needing strength that women are not thought to possess. The findings of this study have demonstrated that claims by men such as ‘women do not have the strength to lift heavy materials’ as their men counterparts. According to studies carried out in the Democratic Republic of Congo's Kivu province, this is often erroneous as only one in five men and less than one in five women thought that women had the right to engage in mineral extraction, indicating that both sexes thought they were capable of doing physically hard jobs.

But generally speaking, the norms-influenced discriminatory attitudes about women's incapacity have extended to sluice operations in Ghana, which is also one of the top paying occupations in artisanal and small-scale gold mines. Ironically, sluice use is common among women in many regions and requires significantly less physical exertion than many other minework occupations (Buss, Rutherford, Sebina-Zziwa, Kibombo & Kisekka (2017). On the one hand, this implies that stereotypes about women's limitations may be deliberately or unintentionally maintained to prevent them from obtaining these higher-paying jobs. However, it also implies that gender norms and attitudes that on the surface appear to be constant or set are actually flexible and ever-changing.

Buss, Katz-Lavigne, Aluoka & Alma (2022) pointed out that in Kenya in some mining communities, men believed it was not acceptable for women menstruating to enter the shaft because the gold deposits would vanish which did not favour women participants in artisanal and small-scale mining. Men further thought that women have less vigour and that the tunnels could cause them to suffocate as the miners crawl on their bellies in some places to look for the mineral deposits. Several societal taboos in Sierra Leone also play a role in the exclusion of women from mining jobs, particularly in extraction in the research communities. For

instance, it's common knowledge that women in artisanal and small-scale gold and diamond mines cause minerals to "disappear" or if a woman whistles close to a mining region, an accident is likely to happen. These norms in communities in Sierra Leone prevent or at least limit women's gainful participation in the division of labour in artisanal and small-scale mining. However, some aspects of gender relations with regard to the division of labour, access to and control over productive resources and benefits, decision-making; and gender norms seem to be changing positively for women in artisanal and small-scale mining as more of these issues are being highlighted in policies and institutions overseeing the operations in the sector.

4.9.2 Linkage with the the Parental Characteristics Framework

The parental characteristics framework strengthens the findings of this research as it links strongly to the reasons for the involvement of children in artisanal and small-scale gold and diamond mining in the research communities in Sierra Leone. This framework explains the features of a child's parents (guardians) which have been identified as explanatory variables determining children's participation in mining activities. These characteristics could include educational background, attitudes, occupation, roles, skills, permissiveness etc (Gündoğdu & Bulut (2023) of parents of children.

There have been several socio-cultural discussions on 'child labour' in sub-Saharan Africa, with the goal of providing a more thorough explanation for why young boys and girls choose to work in the region's artisanal and small-scale mining business, which is deemed to be "hazardous", despite the fact that not much has been deeply explored about the social environment that children find themselves in and causal explanations why they are involved in

the sector (Potter & Lupilya, 2016). This is where the parental characteristics framework finds a linkage with this situation.

Children proabably constitute up to 40% of the total labour force in the artisanal and small-scale mining in the research communities, implying they have a significant contribution in artisanal and small-scale gold and diamond activities in Sierra Leone. Gatsinzi & Hilson (2022) maintains that the notions underlying the concept of "childhood," which is at the center of legal and legislative frameworks for child protection and the abolition of “child labour”, diverge significantly from community perspectives on maturity and preparedness to enter the workforce. Both have their historical origins in middle-class and aristocratic Western environments.

There are two main reasons why children cannot be stopped from participating in the mining activities, according to the findings of this study. The first is attributable to the profile or characteristics of their parents. When the parents of children are affected by poverty, it is more likely that these parents will encourage their children to support them with income to supplement the family expenditure and livelihoods as an obligation to their parents (Nwosu, 2021; Nwosu, 2022). Many people in the artisanal and small-scale gold and diamond mining research communities may be classified as poor, according to Statistics Sierra Leone (2018). This push factor of children into mining cannot be minimised until and unless the circumstances of the parents are improved through social interventions or a general improvement in the economic well-being of the category of people who fall into this poverty bracket, and as Maconachie & Hilson (2016) noted in Kono district of Sierra Leone, these children in artisanal and small-scale gold and diamond mining are a vital source of livelihoods for their families as well as contributing to maintaining them in school.

Schwartz, Lee & Darrah (2021) found out that in the Democratic Republic of Congo, children are compelled to work in the mines when the father, usually the breadwinner of the house, is away and the mother needs to take responsibility for the household livelihood, then the children are pushed to undertake mining tasks to support her efforts. It has been found out that the higher the level of income of a parent or both the less likely children will be involved in work (Koball & Jiang, 2018) to earn money to contribute to the household expenditure, as in the artisanal and small-scale mining sector. In the research communities, income levels are generally low and classified as below the minimum living wage (Statistics Sierra Leone, 2018). By extension, the level of income is also related to the type of employment of the parents and this parental characteristic explains why many children in the research communities are involved in artisanal and small-scale mining tasks because the level of income of their poarents is low as a result of the type of jobs they perform – diggers, who do not have control over proceeds from gold or diamond finds as these go to the financiers of the operations.

Curbing the involvement of children in the labour market remains an elusive effort in many parts of the world. Abaidoo (2024) has identified that the educational background of the parents of a child plays an important role in decisions as to whether to let children join the labour market in artisanal and small-scale gold and diamond mining activities. It is generally concluded that the more educated a parent or both parents are, the less likely it is to send children to work at an early age and that there is a negative correlation between the level of parents' education and child involvement in the labour market.

The propensity to invest in their children's education is often exhibited by educated parents, and it may even outweigh other uses of the child's time, including child labour. Furthermore, parental schooling may boost the productivity of the parents' time as an input in

the child's education. For example, Masayoshi (2020) notes that children whose mothers have a higher level of education dedicate more of their home time to school-related activities, competing with time spent working both within and outside the home.

In the research communities in Kono and Bo districts where artisanal and small-scale mining takes place, most parents have not had the opportunity to attain a good level of education and many others have not gone to school at all, as indicated by Statistics Sierra Leone (2018), which probably indicates that they are more likely not to attach importance to minimising their children's involvement in the labour market.

Increasing school attendance and reducing children in the labour market are two benefits of parental education, according to the findings of Glewwe & Muralidharan (2016). Education influences parents' career choices in addition to their stances on working children and against it. The existing and future employment opportunities available to the next generation are therefore impacted by these decisions. Wantchekon, Klašnja & Novta (2015), for instance, found that children of educated parents in Malawi have a considerably lower likelihood of becoming farmers. Furthermore, if education has a high enough payoff for both parents and their children, parents can feel that forcing them into the workforce, such as artisanal and small-scale mining, is not the best option. Because schooling and child labour are linked decisions, most research often looks at both with guidance from the parental characteristics framework.

The parental characteristics framework goes further to elaborate the relationship between children at work and the occupation of their parents. Most children at work in the artisanal and small-scale mining in the research communities come from parents who are subsistence farmers, involved in the mining activities themselves or are housewives. This

therefore establishes a link between the type of occupation of the parents and children who work at the mines.

Using the parental characteristics framework in the analysis of the information and data from the interviews and focus group discussions can easily demonstrate that whereas boys' involvement in artisanal and small-scale gold and diamond mining is positively connected with both parents' employment, girls actively participate in household activities when their mothers are employed. The employment of parents and girls' involvement in housework is positively correlated, indicating that girls' help with home chores keeps parents in the workforce. This favourable interaction pattern is especially common in children whose parents work informally, as in artisanal and small-scale mining. Therefore, the findings imply that expansionary or anti-poverty policies that target a higher labour force participation rate without taking into account the quality of the job, social safety, and care requirements may have a negative impact on children by making them more dependent on employment (Yokying & Floro, 2020).

Parental permissiveness and role further buttress the link between parental characteristics and working children in artisanal and small-scale gold and diamond mining in the research communities, from the findings of the study. The authoritarian parenting style is marked by strict adherence to parental norms and directives, a tight hold over children's autonomy, and a high degree of demandingness and minimal responsiveness, is a cultural process in bringing up children in Sierra Leone (Neville Antonaccio, Horvath & Vaughan, 2024; Thulin, McLean, Sevalie, Akinsulure-Smith & Betancourt, 2022). Authoritarian parents' attitude towards their children try to regulate their children's behaviour according to a predetermined code of conduct, typically an unbending one. Demands are often used by parents who are authoritarians to chastise their children and give them very little freedom (Olla,

Daulima & Putri, 2018), such as choice to work in the mines or not. Due to such parenting behaviour, children exhibit a lack of warmth and affection in their interactions with their parents. This type of parenting is likely to be negatively associated with children's psychosocial development; that is, children of authoritarian parents are likely to have low self-esteem, be less content and less secure, (Perez-Gramaje, Garcia, Reyes, Serra & Garcia, 2019) and have negative attitudes toward the world; conversely, they are likely to do well in terms of obedience to standards.

On the other hand, strong responsiveness and minimal demands characterise permissive parenting. It is affectionate and supportive but also devoid of oversight, command, and discipline (Mukasa, 2021). In addition to letting their children control their own activities as much as possible, such as deciding whether to be involved in mining activities or not, permissive parents try to act in a non-punitive and accepting way toward their children's desires and actions (Mutunga, Guantai & Mbirirhi, 2023). It is argued that when parents do not enforce boundaries and do not hold their children to developmentally appropriate behaviour, they are engaging in permissive parenting. The psychosocial development of children is therefore likely to be adversely affected by this kind of parenting, and children of permissive parents are prone to display traits like narcissistic tendencies, social irresponsibility, and self-centered drive (Kohlmeier, 2019). Consequently, children's psychosocial development may be harmed by both liberal and authoritarian discipline methods. Additionally, throughout time, these parenting philosophies have been continuously associated with a range of detrimental developmental outcomes, including behavioural issues.

The parental characteristics also align with children's involvement in artisanal and small-scale gold and diamond mining activities in the research communities. Besides the

preferences of parents influencing whether children should engage in mining tasks or not, children see themselves as having an obligation to support the livelihoods of their poor families.

The amount of time that children spend with one another affects their health, educatio n, and prospects for the future, and in Sierra Leone, children spend their time within the framework of power relations. Children co-create their temporal spaces and patterns of time usage within the confirms of societal norms and expectations (Samonova et al., 2022) and the ways in which different dimensions and manifestations of power interact to form and reshape gender, generation and other societal orders within the Sierra Leonean culture influence children's routines (Samonova et al., 2022).

From the findings of this study, for children in artisanal and small-scale gold and diamond mining communities play, work, and school time merge in temporal spaces created by this power dynamic. The examination of this time usage has demonstrated that children allocate their time in a complex network of activities that may occur concurrently, rather than just distributing tasks in a one-dimensional manner but often mindful of the significant importance of their contribution to family welfare.

In conclusion, whether children choose to work or go to school or combine work with going to school as demonstrated in the findings of this study, has a bearing on the characteristics of their parents with regard to their economic status, type of employment, level of education, permissiveness and roles; and also, children's desire to do so.

4.9.3 Linkage with the New Sociology of Childhood

The new sociology of childhood suggests that children are able to create their own understanding of the world around them as autonomous social actors with free will, the ability

to engage, and the right to have their opinions acknowledged (Abebe, 2019). The new sociology of childhood contrasts with the traditional sociology of childhood which views childhood as a stage of life that children go through as well as a social class or category within society (Prout & James, 2015). The new sociology of childhood sees childhood as a permanent structural category in society, even though it is a transient era for children. The idea that childhood can be seen as a structural form by contrasting it with viewpoints that consider childhood to be only a stage of life is what the 'new' sociology of childhood portrays (Corsaro & Everitt, 2023).

The new sociology of childhood has an influence on child agency and children's participation in artisanal and small-scale gold and diamond mining in the research communities as it explains the participation of children in the mining tasks at an early age below 18 years. This is a form of socialisation by which children adapt to and internalise society, which is also firmly grounded in Sierra Leonean culture (Mulkeen & Kakay, 2017; Ofosu-Kus, 2017). Moral, political, and discursive logics that diverge from those held by children and communities directly impacted by circumstances of need fail to address the underlying issues in a specific culture and context.

Johnson (2019) highlights how cultural norms can blur the boundaries of childhood, as individuals may be considered children well into adulthood based on familial relationships. In patriarchal Sierra Leonean culture and context, as in many parts of Sub-Saharan Africa, a person, especially a male, still living with his parents or whose parents are still alive may be considered a 'child' regardless of his age while a child who is less than 18 years may be measured as an adult due to circumstances that lead such a person to take up certain roles such as care for siblings or a surviving mother. This is more pronounced when such a child is heading

a household. Females, notwithstanding their age cannot be recognised as the head of a household when there is a male household member (Christianson, Teiler & Eriksson, 2021).

Likewise, in Sierra Leonean culture, female children have their own obligations towards the family. These include cleaning the house, cooking, washing of dishes and clothes of other family members, collecting water for household use, and assisting the mother in taking care of the elderly and sick (Yengoh, Armah & Steen, 2015). Kaplan. (2023) remarks that female children are generally more sympathetic to the family than their male counterparts, and this sometimes compels them to go the extra mile to earn income to support especially the mother in times of family stress.

The participation of children in artisanal and small-scale gold and diamond mining activities is influenced by cultural expectations, as children may engage in work considered adult responsibilities due to family circumstances (Hogerbrugge & Silverstein, 2015). Contrary to the assumption that children's involvement in mining is solely driven by poverty, studies show that it is often part of a broader pattern of child work and training, similar to children's involvement in subsistence agriculture (Maconachie & Hilson, 2016; O'Driscoll, 2017). The new sociology of childhood gave an inspiration in the analysis of the involvement of children, especially boys in artisanal and small-scale mining in the research communities.

What was originally assumed to be childhood was, in reality, constructed and difficult to universalise, as the new sociology of childhood has shown. The perspective shifted to view children as capable actors with independent social agency. By viewing children as members of a social group, focus may be placed on the institutions that either support or limit the lives of children, as well as their rights. There has been a surge in thought that saw children as a vulnerable minority that could be taken advantage of by adults.

Children endure a range of socio-economic circumstances and come in a variety of ages, genders, and ethnicities, which makes sociological viewpoints on childhood significant. A crucial viewpoint in sociology is the social production of infancy. The idea that childhood is not a normal phase of human development is known as the "social construction of childhood" and this helps explain the reasons for children's involvement in artisanal and small-scale mining activities.

4.10 Summary

Artisanal and small-scale mining remains a significant but contentious livelihood strategy for numerous communities in Sierra Leone, particularly during the off-season when agricultural activities are insufficient to sustain families all-year-round. Despite its benefits, artisanal and small-scale mining perpetuates gender disparities, with men dominating both participation and control over resources and decision-making. Women and children, constrained by cultural norms and limited access to land and financial resources, are often relegated to waged labour, facing discrimination and abuse in the process. While artisanal and small-scale mining provides essential income for families, particularly keeping children in school and supporting widowed women, it also exacerbates gender inequalities and exposes women to various forms of exploitation and violence. Moreover, entrenched social norms and traditional beliefs further marginalise women, restricting their access to land and direct benefits from lucrative mining activities. Thus, while artisanal and small-scale mining offers economic opportunities, its gendered impacts underscore the urgent need for comprehensive reforms to address systemic inequalities and ensure equitable participation and benefits for all stakeholders. Children also encounter significant barriers to their involvement in artisanal and small-scale mining activities, facing physical strain, fatigue, and illness due to the demanding

nature of the tasks. They are often paid less than adult miners and are relegated to the bottom of the job hierarchy. Exposure to negative influences such as alcohol, smoking, and substance abuse further jeopardises their well-being, leading to wayward behaviours and difficulty in school retention. Girls, in particular, are vulnerable to sexual violence and exploitation, which contributes to high rates of teenage pregnancies, early marriages, and the transmission of sexually transmitted infections consequently leading to school dropout. The burgeoning significance of artisanal and small-scale mining in Sierra Leone necessitates governmental intervention to regulate and formalise these activities at the local level, thereby maximising benefits to communities while mitigating risks, especially for vulnerable groups like women and children.

The study also finds that boys from Tombodu report frequent verbal abuse from mine owners, intended to expedite work but adversely affecting children's mental health. This abusive environment, especially during demanding tasks like pass bucket duties, results in the replacement of weaker workers with stronger ones, further entrenching the harsh conditions faced by women and children in the mines.

The findings of the study elucidate that men are more likely to be employed in the mines due to their perceived strength and working capabilities, corroborating evidence from studies in the eastern Democratic Republic of Congo, Katanga province, and Migori county, Kenya (Bashwira, Cuvelier, Hilhorst & Van der Haar, 2014; Cuvelier, 2014; Buss, Katz-Lavigne, Aluoka & Alma, 2022). Girls typically work in roles such as 'pass bucket,' receiving lower pay than their male counterparts and often exerting more effort than they can manage. The responsibility for family upkeep usually falls on the head of the household, who often abandons the family, forcing children to work in the mines. This situation aligns with findings from

Ghana, the Democratic Republic of Congo, and across Asia and Africa (Hilson & Osei, 2014; Faber, Krause & Sánchez de la Sierra, 2017; O'Driscoll, 2017). Individual interviews provided deeper insights into the lives and perspectives of those working in the artisanal and small-scale mines.

The parental characteristics theoretical framework analyses household resources and parental attitudes toward their children's well-being, offering a tool useful in social work, psychology, and pedagogy (Maxwell, 2021). Parents are significant stakeholders in their children's education and well-being, making their inclusion in design thinking crucial. This framework highlights that while mining activities are detrimental to women's and children's health, they provide vital livelihoods. The findings from this study have shown that artisanal and small-scale mining supports many families, empowering them to earn better living and support their education and basic needs (Osei, Yeboah, Kumi & Antoh, 2021; Bansah, Dumakor-Dupey, Kansake, Assan & Bekui, 2018).

The analysis revealed outlier findings due to varied perceptions of participants' lived experiences, a natural variation in qualitative responses (Laato, Inaba, Paloheimo & Laajala, 2021). The qualitative methods and procedures used in the study rendered the findings credible. The theoretical frameworks used explained reasons for the abandonment of women by men working in the mines, parental attitudes towards children's involvement in mining, and the intentions of young children to continue participating in artisanal and small-scale mining activities. The study's conclusions exceeded expectations, and the findings are credible for further research on this subject. Children working in the mines have varied experiences and fears, particularly regarding the frequent accidents.

Men typically perform most of the work as they are often the primary breadwinners, a finding also supported by studies on household dynamics in Ghana (Arthur-Holmes & Busia, 2020). The findings of this study, similar to those found out in the Democratic Republic of Congo, see men's participation in mining as both an economic survival strategy and a means of redefining masculinity in an economic crisis (Cuvelier, 2014), both consistent with the gender theoretical framework of ascribing roles and responsibilities between men and women with women always at the losing end. The study found that children work in the mines for smaller wages to meet needs such as school fees and food. The testimonies from this study reveal, just as found out in Tanzania, that child labour in mining is viewed as vocational training and a means to bolster household income (Potter & Lupilya, 2016). Similarly, in the copperbelt region of the Democratic Republic of Congo, children work to support their education and household livelihoods (Faber, Krause & Sánchez de la Sierra, 2017). Despite discouragement from teachers due to low wages, disruption of school contact hours and high risks, children continue to work in the mines in the research communities, facing dangers such as falling into pits. Women and children in Sierra Leone's artisanal and small-scale gold mines are exposed to dust and suffer from injuries due to cuts and bruises (Omotehinse & Ogunlade, 2022). In the Kolwezi region of the Democratic Republic of Congo, it was also found out that children risk severe injuries or death from mining activities (Batano, Doevenspeck & Biningo, 2023). Furthermore, artisanal and small-scale mining has caused ecological imbalances, displacing local communities and rendering lands barren and causing food insecurity in the research communities.

Studies conducted in Sierra Leone's Bonthe, Port Loko, and Kono districts (Mabey, Li, Sundufu & Lashari, 2020) reveal land degradation caused by artisanal and small-scale mining

activities. This degradation resulted in a loss of agricultural land and livelihoods for local communities. Similarly, research in Tonkolili district (Wilson, Wilson & Moise, 2022) employing time series analysis of land use and cover, demonstrates that artisanal and small-scale mining activities create ponds that pollute nearby wetlands. This pollution negatively impacts farming, the dominant source of income in the area.

Furthermore, participants' testimonies from this study suggest that the intensive mining practices have depleted mineral resources in easily accessible locations (Mabey, Li, Sundufu & Lashari, 2020; Pedersen, Nielsen, Friis & Jønsson, 2021). This depletion forces artisanal and small-scale miners to venture further from their communities, increasing competition for limited resources and making it more difficult to find valuable minerals.

The consequence of artisanal and small-scale mining on local ecosystems is also highlighted. The removal of vegetation and land degradation leave behind barren landscapes, significantly reducing the green cover (Mabey, Li, Sundufu & Lashari, 2020; Wilson, Wilson & Moise, 2022). This deforestation creates challenges for agrarian communities, making it difficult to access groundwater and freshwater resources essential for agriculture.

The research also points towards increased strain on local communities due to artisanal and small-scale mining practices (Mabey, Li, Sundufu & Lashari, 2020). One concerning aspect is the exploitation of women and children. Financial hardship compels women to enter the mining industry, where they face discrimination (Mabey, Li, Sundufu & Lashari, 2020). This study found that girls as young as eleven and boys as young as twelve are compelled to work in difficult conditions and face sexual servitude in the mines (Mabey, Li, Sundufu & Lashari, 2020). These children often work in laborious conditions for long hours and may face physical abuse.

Overall, the findings from these studies in Sierra Leone suggest that the negative impacts of artisanal and small-scale mining on local communities do not outweigh the current and potential benefits and can be improved further with serious reforms in the policies, laws and institutions in charge of artisanal and small-scale mining. The current practices in artisanal and small-scale mining in Sierra Leone contribute to environmental degradation, resource depletion, and strain on social structures, particularly impacting women and children and have far-reaching implications for making a social impact on the communities where artisanal and small-scale mining takes place with particular regard to women and children for which practical recommendations will be made for positive changes.

CHAPTER 5: IMPLICATIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 5 starts with a reminder of the reasons for conducting this study, the methods and methodology, the justification, significance of the study and discusses the implications of the findings. The chapter goes on to make recommendations for the applications of the findings, and their practicality in solving real-world problems in Sierra Leone and proceeds to make recommendations for future research based on the findings, the problem, significance, and theoretical frameworks used to justify the study. The chapter concludes by making specific emphasis on the findings of the study and what the findings mean with respect to theory and/or prior research or practice based on the effects of artisanal and small-scale mining on women and children in the selected communities and describing how the findings respond to the study problem, demonstrate significance, and contribute to the existing literature or contribute to practice. The conclusion brings closure to the entire thesis highlighting the important inferences drawn from the current study.

The rural environment of Sierra Leone has incorporated artisanal and small-scale gold and diamond mining as an essential feature of their livelihood activities. Artisanal and small-scale gold and diamond mining operations often overlap and are processed differently but both activities are often unregulated and informal (Maconachie & Conteh, 2021) and these activities are intricate and fluid. In Sierra Leone, there are specific geographical locations where the extraction of diamonds and gold can occur separately. It may be claimed that substantial diamond resources are found in the southern and eastern parts of the country, while gold reserves are concentrated in the northeast and central Sierra Leone (Markwitz, Hein & Miller, 2016).

Artisanal and small-scale mining activities have continued to arouse intense debates in Sierra Leone. There are arguments as to whether the profusion of such mineral riches is doing any good to the country and the societies in which these minerals are discovered (Hilson & Maconachie, 2017) and the historical fact that the mineral wealth contributed to the brutal decade-long civil war in the 1990s. Due to their unique situation as a collective group in many ways, women and children in the research communities are affected directly or indirectly, positively or negatively, by artisanal and small-scale mining (Bo, Bonthe & Leone, 2018; Talbot, 2019).

There is a paucity of literature on the effects of artisanal and small-scale mining on women and children collectively as a vulnerable group in Sierra Leone even though there is a recognition that women and children make significant contributions to artisanal and small-scale mining in the country. The lack of adequate information makes it difficult for the necessary measures to be put in place to amplify and consolidate the benefits and reduce the negative effects on women and children, as they are already affected by gendered and generational norms, cultural practces and traditional beliefs in the country, which are exacerbated by gendered institutions.

Therefore, the goal of this study is to centre it around the real-life experiences of women and children who work in artisanal and small-scale gold and diamond mining in their communities to ensure that their opinions and voices are perceived and heard, and that their needs, concerns, and aspirations are recognised in order to educate others who may have the ability to positively impact their lives.

Looking into their lived experiences in the artisanal and small-scale gold and diamond mining activities will strengthen an understanding of the effects of these activities on women

and children as to why and how these effects are produced and re-produced, and to seek how they could be lessened to offer women and children in these communities in which artisanal and small-scale mining takes place different livelihood and social opportunities to further improve their well-being. The findings of this research will therefore offer new insights, improve learning in the artisanal and small-scale gold and diamond mining sector, understand the intricate phenomena in that sector, and produce new ideas to inform stakeholders in that sector (Sudheesh, Duggappa & Nethra, 2016; Tully, 2014).

The research employed the qualitative methodology which is coherent with the naturalistic approach (McInnes, Peters, Bonney & Halcomb, 2017) and adopted phenomena by assessing interactions, behaviours, and experiences without the need for complex algebraic procedures or the administration of numerical data (Hennink, Hutter & Bailey, 2020). Additionally, the qualitative approach was appropriate for this study since it considered the social phenomena of artisanal and small-scale gold and diamond mining from the viewpoints of the participants (Hennink, Hutter, & Bailey, 2020) and provided benefits to understand the nature and complexity of the artisanal and small-scale mining phenomenon (Basias & Pollalis, 2018).

5.2 Implications of the Findings

At the beginning of the 1950s, artisanal and small-scale mining begun as a major source of livelihoods in rural Sierra Leone (Knu & Sawaneh, 2022) and its profitability attracted many people to the diamond mining areas in the north of the country. Since then, interest in the sector has snowballed and has become a source of livelihood for many households and also now contributes up to 40% of all diamond exports (Republic of Sierra Leone, 2018). Artisanal and small-scale mining has spread widely to many communities in Sierra Leone since the last two

decades when the civil war ended. The ability or potential of this research is to have a noticeable impact on society that aims to improve people's lives by applying evidence that has a positive social impact. There are far-reaching implications for the findings of this research in addressing the research objectives which are now being analysed below.

The first objective for the research was to assess the extent to which mining activities have contributed to marginalisation, deprivation, and poverty entrapment of women and children through their informal participation in low-technology, labour-intensive processes. The second objective was to evaluate the extent to which the dependence by women and children on income from mining activities for the livelihoods of their families has increased their vulnerability so that we understand how their lives may be improved. The third objective was to examine ways in which the realities of children and economic exploitation by the mining sector affect their education and make it difficult to eliminate their involvement in child labour in mining activities. The fourth objective was to assess the weaknesses in regulations to protect women and children, and to find out what are the main financial leakages for education and health facilities from mining activities, so that these may be minimised for the well-being of women and children.

5.2.1 Marginalization, Deprivation and Poverty Entrapment of Women and Children

The study found that women and children earn considerably less than men in the mining activities which contributes to exacerbating their vulnerability (Arthur-Holmes & Abrefa Busia, 2021). The responses from both women and children from the study indicate that they are the last to get work at the mines when there are not enough jobs to go around everybody and that only men are allowed to own land for mining activities and women and children can only work on these lands as casual labourers earning daily wages. These findings confirm Buss

et al., (2019), Rutherford & Buss (2019) who found in the Democratic Republic of Congo, Rwanda and Uganda that organising mining roles according to gender defined what women should do and placed disproportionate emphasis on women's household and care work which in turn limited their participation and devalued their work at the mines and often denying them access to land and licenses for mining.

The fact that women cannot own land, have limited capital to lease land and would not even be considered if they had capital to do so puts them in a disadvantaged position to be able to acquire land for mining. This gender power relation, consistent with the gender theoretical framework, between men and women structures women's involvement in artisanal and small-scale mining activities and are legitimised by gender norms and institutions that reproduce and are reinforced by the different abilities of men and women to control resources and make decisions. This situation agrees with Danielsen & Hinton (2020) in their study of social relations of gender analysis of artisanal and small-scale mining in Africa's Great Lakes Region and Ofosu, Torbor & Sarpong (2022) in looking at gender and artisanal and small-scale mining in Ghana. In addition, the marginalisation of women is worsened by the fact that traditionally, it is the woman who usually has responsibility for the care and reproductive activities at home further putting impediments on the time and energy available to women to gainfully participate in the mining activities.

If women are to have tangible benefits from artisanal and small-scale mining, then real reforms are needed in institutions, norms, cultural practices and traditional beliefs. This calls for a participatory approach to addressing the problem by involving the government at the central level, local authorities, traditional rulers and other stakeholders including women's orgainisations and other relevant non-governmental organisations in Sierra Leone. Without

such a process approach to the issues relating to access to and control over productive resources which contribute to the marginalization and deprivation of women, the empowerment of women will remain an illusion that will always be discussed but never achieved.

Women themselves succumbed to playing a subordinate role to men which has the implication of continuing to marginalise them. In this regard, women themselves in the rural areas need to have a change of mindset to understand and agree that gender equality is desirable for the progress of their communities and to see themselves as equal partners to the men and together they can complement each other for the improvement of their households and the country in general.

Society often also sees women and children as vulnerable people who should be dependent and cared for by men and that it is the responsibility of men to work and earn money to take care of their families (McLean, 2021). From the findings of the study, women and children noted that the decision to participate in artisanal and small-scale mining activities is largely determined by their husbands and fathers and sometimes leads to divorce of the women. The men participate in decisions on the use of income earned by women and children from the mining activities which demonstrates the cultural marginalisation of the women and children and thereby increases their vulnerabilities. This state of affairs for women in artisanal and small-scale mining finds justification in the gender theoretical framework, and that of children situates itself in the parental characteristics theoretical framework which assumes that the preferences of a child's parents influence the decisions to allow children to work in the mines.

Women therefore need to be empowered to use the income they earn from the artisanal and small-scale mining activities as 'trump cards' in household negotiations and the decision-making process with men regarding their productive and reproductive rights since such income

is a valuable contribution to household welfare that needs to be appreciated and recognised. This will require the courage of conviction for a firm stand by women on what is negotiable and what is not and to resist cultural practices and traditional beliefs and norms that seek to relegate them to the background in society. This process will need a critical mass action to be supported by women's rights activists and movements, locally, nationally and internationally, to be reinforced by existing international statutes on women's rights.

Women also benefit from their participation in artisanal and small-scale mining activities economically and socially. Again, in the midst of poverty in many rural communities in Sierra Leone, husbands, whose traditional responsibility it is to adequately provide for the family welfare are often not able to or fail to. This condition agrees with Lawrence-Hart (2019) who, in studying the socio-cultural significance of the family affirms that sometimes it is difficult for the man to always meet the needs of the family. This is exacerbated in situations of polygamous families which often have a large number of children. Women involved in artisanal and small-scale mining activities often earn much more than they would from other income-generating activities in Sierra Leone. This concurs with the findings of Hilson, Hilson, Siwale & Maconachie (2018) who studied women's participation in artisanal and small-scale mining in Sierra Leone and Zambia and found that they earn more money in this sector than other sectors other women are engaged in.

Earning such money does not necessarily imply that they have the absolute right of its use in the male-controlled setting in Sierra Leone. This study found that in addition to their traditional home productive and reproductive roles, work in the artisanal and small-scale mines increases the 'triple work burden' of women and often comes at the expense of their health and space to engage in other social activities. The implication is that a good proportion of that

money may be ploughed back into medical expenses and other related costs, thereby negating the positive effect of the income earned. A reconfiguration of the domestic responsibilities of women in Sierra Leone is therefore needed if women are to play critical social and economic roles in society.

5.2.2 Dependence by Women and Children on Income from Mining Activities for their Livelihoods

Artisanal and small-scale mining activities have differential impacts on different people who participate in them. It is not only the exposure to risks that places people in difficulties but also the socio-economic processes in society that generate vulnerability and create conditions that negatively affect the ability of people to cope, respond to, and recover from the effects of the mining activities (Wisner, 2016). These societal structures, which perceive vulnerability differently, contribute to the severity of vulnerability of women and children in the mining activities.

The societal structures that perceive women and children as vulnerable groups in the communities place them in a disadvantageous position when it comes to appropriating benefits from the mining activities. This situation corroborates with findings by Koomson-Yalley & Kyei (2020) in the Talensi area of northern Ghana which makes women and children unable to enjoy the same level of benefits as their male counterparts in the artisanal and small-scale mining activities. From the findings of this study, women and children are normally considered weaker than their male counterparts and therefore given only the menial routine tasks in the mining processes such as carrying the sand that contains the minerals, crushing the rocks or collecting water for the miners. This situation is consistent with those of Arthur-Holmes & Abrefa Busia (2021) who examined the struggles of women in artisanal and small-scale gold mining in rural Ghana, in which they found that women working in artisanal and small-scale

mining suffer from cultural marginalisation and gendered work patterns which contribute to creating dependencies.

Men consider women and children weaker and women and children consider themselves weaker than men (Byemba, 2020) which plays a big role in the division of labour and work patterns in the mines, constructed by the dimensions of gender dynamics and relations. In the Great Lakes Region of Africa, Danielsen & Hinton (2020) drew attention to how gender relations are constructed, reinforced, and challenged in and through artisanal and small-scale mining. Even though some women and adolescent children could be stronger than some men, societal perceptions about the women and children keeps them in the periphery of benefits from the mining activities and gender inequality is still prevalent in the sector (Yakovleva, Vazquez-Brust, Arthur-Holmes & Busia, 2022). The perception that women and children are vulnerable groups of people only keeps them marginalised and at the periphery in the mining activities which translates into lesser earnings than their male counterparts and therefore increases their dependency both on men and on the mining activities. This finding agrees with the gender theoretical framework in which culture assigns expectations of the roles and behaviours of men and women in society and differentiates the socially constructed roles from the biologically determined aspects of being a man or woman (Schellenberg & Kaiser, 2018).

The interview findings from the children also indicate that apart from money earned from mining activities keeping them in school, they are also able provide other essential needs for themselves such as clothes, bicycles and sandals constituting a positive correlation between involvement in mining and prolonged retention in school by children. Some children even contribute money for the upkeep of their families and are therefore encouraged by their parents

to continue with the mining activities despite the risks of being injured or evening dying doing these activities. This situation corresponds with Maconachie & Hilson (2016) who observed that in Sierra Leone, children involved in artisanal and small-scale mining play an important role in poverty alleviation of their families, and going to school and working can symbiotically exist for children when the situation calls for it.

Both the women and children reported that mining activities are largely physical by nature as they have to scoop and take a bucket of sand containing the diamond or gold ore to dump in locations where the minerals would be extracted. This has to be done by passing the filled bucket from one person to the other by hand. Often this is too heavy for them, and they return home tired and sick from the day's activities. This situation limits their involvement in other activities such as playing football or other games or going to collect water from the well or engaging in farming activities. Ibrahim, Rutherford & Buss (2020, p.157) noted that this division of labour for women in artisanal and small-scale mining activities are trapped in the "pre-existing social relations, dependency ties, and governance relations in gold mining sites", and found that gendered norms and practices, together with governance issues, work at keeping women in "gendered roles and limit their empowerment and full participation in the artisanal and small-scale mining sector" which work against women by keeping them at the periphery even though their involvement may provide financial returns to their families.

The findings from this study indicate that women and children experience more dependency within mining communities due to the differential benefits enjoyed by women and children on one hand and men on the other. Male miners who make finds and sell them often use the money for other expenditure not related to the care of the family. Some men, it was found out, would marry a second wife or go off to another place to enjoy the proceeds from

their finds instead of improving the care for the family with regard to improved food security, better dwelling places and payment of school fees for the children. This matches with the findings of Ofosu, Dittmann, Sarpong & Botchie (2020) in mining communities in Ghana, where there can sometimes be a shift of efforts and labour from food production to artisanal and small-scale mining activities, which could affect food availability at home if the proceeds from mining are not used to improve household food security.

In artisanal and small-scale mining social norms traditional beliefs and cultural practices often work against women and children's beneficial participation in the activities. In the study communities, unlike men who are free to move from one place to another to search for work in the mines, the mobility of women and children to engage in mining activities is not easy as compared to men. This culturally moderating factor in women and children's mobility to search for employment opportunities limits their ability to earn income from other locations where work opportunities avail and keeps them dependent on mining activities in their communities only.

A traditional belief system in artisanal and small-scale mining in Sierra Leone is that women are not allowed to do the digging of the soil that contains the minerals, especially when they are menstruating. This is also true for women and girls who have had sex in their lives. The belief is that the gold or diamonds will disappear if such women and girls are involved. This belief system relegates women and girls to be involved in only the routine roles of carrying the ore, crushing, panning and selling goods in the mine sites and the lucrative activities of digging for the minerals solely by the men. This also makes women to be found at the very bottom of the sector's hierarchy, performing only subordinate work. This confirms the findings of Buss & Rutherford (2020) in their studies of initiatives, laws and policies seeking to regulate

mining in sub-Saharan Africa and Hilson, Hilson, Siwale, & Maconachie (2018) in their review of women and artisanal and small-scale mining in sub-Saharan Africa. The exception to women and children involved in routine menial roles is in the artisanal and small-scale gold mining activities where women pan the waters of a river for gold and own their finds.

Women and children involved in artisanal and small-scale mining in the rural communities participate equally in some tasks performed by men such as the 'pass bucket' process at the mines. They stand all day, shoulder to shoulder with their male counterparts doing this task. Unless the mentality that they are weaker than men is erased from the minds of men, women and children, this injustice of differential wages for the same tasks will remain entrenched in artisanal and small-scale mining in the country. Policies and laws alone cannot change the status quo in the roles and management positions in artisanal and small-scale mining unless there are pragmatic and practical steps to address and reverse this situation at the district and community levels. In some countries such as Ghana, women are able to negotiate with the men leaders to get involved in the digging tasks that are lucrative and better rewarding than the routine tasks normally awarded to children. Such a shift will require the cooperation of the traditional and cultural set up in the rural communities where artisanal and small-scale mining takes place. If tradition has been broken to have female paramount chiefs in some communities in Sierra Leone, then it is entirely possible to alter the persistent subordinate roles of women and children in artisanal and small-scale mining. More earnings by women and children in artisanal and small-scale mining means an increased welfare of the families of the women and children since most of their income is spent for the family than their male counterparts who have diverse use of their mining income including alcoholism and polygamy.

5.2.3 Realities of Children and Economic Exploitation by the Mining Sector

Involvement in artisanal and small-scale mining activities has both beneficial and adverse impacts for women and children. The impact on women and children is viewed differently by men on the one hand and women and children on the other. The focus group discussions and the individual interviews reveal that earnings from artisanal and small-scale mining help children stay in school. It enables children, both boys and girls, to afford school user fees and lunch without which they would have dropped out of school, as may be noted in Table 6 in the expenditure pattern of the child participants of this research. This finding is surprising but consistent with that found by Monacochie and Hilson (2016) when they interviewed children involved in artisanal and small-scale mining in Bandafayie community in Sierra Leone on how they spend their income from the mining activities and also by De Haan, Dales & McQuilken (2020) who established a positive link between artisanal and small-scale mining operations contributions to school retention and indicate that artisanal and small-scale mining revenues are often used to pay for education, whether by parents or by mining children and youth themselves. Artisanal and small-scale mining provides opportunities for on-the-job-learning and skills-based training, which are also transferrable to other economic activities. This contribution to education and the achievement of SDG goal 4 is contrary to the widely held claims by certain institutions, especially by the United Nations International Labour Organisation (ILO), the United Nations Children's Fund (UNICEF) and the international non-governmental organisations such as Save the Children, that such involvement contributes to school dropout and that involvement in mining activities constitutes the worst form of child labour (ILO convention 182). Interviews with children in the mining communities also revealed that these children do not see their involvement in artisanal and small-scale mining any

different or hazardous from their participation in agricultural activities which is normally considered as child work and child training. In the study communities, children attend school and at the same time go to do mining activities which is different from earlier research findings as a binary of children either being in school or at the mines but not both (Maconachie & Hilson, 2016). Maconachie & Hilson (2016) in re-thinking the child labour debate in Sierra Leone maintains that universal child conventions such as those of the United Nations and child rights advocates fail to capture the realities of children in the rural communities in dealing with household poverty and improving their livelihood opportunities and observe that the work of children in the mines contributes to their education.

Education at the basic level is free in Sierra Leone under the Government's 'Free Quality Education policy'. However, there are still some user fees that must be met by children such as the provision of books, transportation, uniforms and lunch while at school and other education-related costs. Samonova et al. (2021) in reviewing the nature of schooling costs in Sierra Leone, agree that in the midst of high poverty levels, especially in the rural communities, meeting these user costs in education can be quite high and unaffordable for parents who may have more than one child in school. This situation is further emphasised by Bolten & Marcantonio (2021) in reflecting on the expectations and realities of education in post-conflict Sierra Leone. Girls have additional needs in school. These include 'dignity kits' for them during their menstruation periods and when not available can prevent them from going to school during menstruation or lead them into using unsanitary materials that can infect them. These challenges of schoolgirls agree with Kumbeni, Ziba, Apenkwa & Otupiri (2021) in findings from studying the prevalence and factors associated with menstruation-related school absenteeism among adolescent girls in rural northern Ghana.

Children are known to have acquired habits while working at the mines that are likely to affect their healthy growth and positive psychological development. A result of their involvement in the mining activities is the acquisition of bad habits at an early age such as alcohol abuse, smoking cigarettes and other substances. They learn these habits from adults at the mines when they are sent to buy these substances or actually thought on how to use them. These habits either make them drop out of school or have deviant behaviour in the communities. These findings align with the findings of De Haan, Dales & McQuilken (2020), who remark that many child miners in Sierra Leone have acquired the habit of drug and alcohol abuse and while Kumar, Wata & Muthuraman (2020) noted same for the children in Ethiopian mines while Sovacool (2021) also noted heavy drinking and alcohol abuse by children in the mines in the Democratic Republic of Congo.

The reality is that it is not likely for any policies or laws to stop children's involvement in artisanal and small-scale mining activities in Sierra Leone now or in the future. It is therefore essential for any advocacy or endeavours on children's involvement in artisanal and small-scale mining to recognise this reality and work towards addressing any discrimination against or abuses of such children so that they can enjoy the full benefits of their contribution to artisanal and small-scale mining such as tasks that make their working conditions difficult or actions by mine owners that are likely to result in abuses.

The evidence from this reaesrch does not condone the assertion that children's involvement in artisanal and small-scale mining constitutes child labour and of the worse form. The lack of any universal agreement on what constitutes child labour makes any measurements of what constitutes child labour in artisanal and small-scale mining difficult. Parents and children themselves do not see any involvement of tasks such as 'pass bucket', crushing or

panning any more difficult than their involvement in farm work or collecting water from the pond for household use.

Therefore, what needs to be done to avoid any excesses in children's involvement in artisanal and small-scale mining is to institute by-laws at the local level by local authorities and also monitored at the local level to ensure children work in dignity, have their rights respected and are commensurately compensated for their labour. The recognition of children's immense contribution in artisanal and small-scale mining will therefore require institutional, policy and law reforms at both the national and local levels, with local level enforcement.

5.2.4 Weaknesses in Regulations to Protect Women and Children

The findings from this study indicate a lack of enforcement or at best, weak enforcement of the laws, policies and regulations on artisanal and small-scale mining in Sierra Leone. The country has ratified a number of international laws and passed progressive national child-related and gender laws that if implemented protect women and children in artisanal and small-scale mining and also regulate the activities of artisanal and small-scale mining itself.

The laws that seek to protect women and children include the Domestic Violence Act which seeks to address all types of violence in a domestic setting, the Devolution of Estates Act, also known as the 'Intestate Succession Act' that provides protection for women in terms of land and estate inheritance in the event that her spouse dies intestate (without a will) and the Registration of Customary Marriages and Divorces Act that outlines a framework for registering customary marriages and divorces, which provides further economic and legal protection for women. Another law is the Sexual Offences Act, which provides a clear framework for addressing sexual violence crimes and lately, the Child Marriage Act that makes it a crime to marry a girl below the age of 18 years.

The artisanal and small-scale mining policy of 2018 enshrines the government's overarching policy commitment to domesticating the African Mining Vision, which was endorsed by African Heads of State in 2009 with the intention of placing Sierra Leone's mining industry at the forefront of industrialisation, sustainable development, and economic diversification and growth, and outlines the long-term development and transformation objectives of the nation It also highlights the nation's artisanal and small-scale mining sector as the main engine of regional economic growth and rural subsistence while addressing the concerns related to artisanal and small-scale mining's effects on the economy, society, health, safety, and environment which present a compelling argument in favour of creating a distinct policy document to direct the government's efforts to formalise the sector.

Both the policy on artisanal and small-scale mining and the laws to protect women and children provide adequate guarantees for women and children involved in mining activities if applied and implemented.

The findings from the research indicate these progressive laws and policies are not being implemented as they should because teenage pregnancies are on the rise in the research communities, often making girls drop out of school and become mothers at an age before 18. The male miners who commit these offences are frequently left to go free due to compromises with the girl’s family and weak mechanisms for the application of the Sexual Offences Act.

Similar to teenage pregnancies, many girls in artisanal and small-scale mining communities are compelled to marry at an early age, contrary to the laws and policies prohibiting early marriages by the government, according to the findings of Ibrahim, Rutherford & Buss (2020) in the Tonkolili district of Sierra leone. This causes school dropout for the girls and such girls are subjected to domestic servitude and giving birth at an early age

can have serious health effects on them. The ‘push’ factor for such early marriages is poverty which compels parents to give out their daughters at an early age or the girls are compelled to marry at an early age by themselves because their parents are unable to provide for their basic needs. This state of affairs agrees with O’Driscoll (2017), Ouma, Ting & Pesha (2017) who found out that in artisanal and small-scale mining communities in Tanzania, girls are forced to marry at an early age and become pregnant due to a combination of factors including the need for money for upkeep.

Divorce was often mentioned by the individual and focus group participants as a consequence of living in communities where artisanal and small-scale mining takes place. Women who got themselves involved in these activities were often suspected by their husbands of having extra-marital affairs with the miners or male miners who got money would get attracted to a different woman, both of these cause family frictions leading to divorce, and family breakups which bring untold hardship to the children who have to contend themselves with living with one of the parents. Baffour-Kyei, Mensah, Owusu & Horlu (2021) in their study of artisanal and small-scale mining communities in the southern part of Ghana observe that divorce and broken homes are increasing in the mining communities for similar reasons.

Sexual harassment and violence at the mines were a common finding from the study, especially for young girls and women. Often, the mine owners would ask for sexual favours to give out daily jobs to the women and girls. Or the women and girls would have their breasts touched or buttocks slapped by the male mine owners. This harassment occurred because the women and girls had no alternative livelihood options than to get involved in mining activities to earn income to support themselves and their families. Similar findings have been made by O’Driscoll (2017), Paschal & Kauangal (2023) and Schwartz, Lee & Darrah (2021) who note

that there is often sexual harassment and pressure to engage in sex work at the mines by children as well as women being frequently exposed to sexual violence in mining communities in Sub-Saharan Africa.

Another result of this study is the frequent injuries encountered by children involved in artisanal and small-scale mining activities. Most children, both boys and girls, said injuries to, at and from the mines were their greatest challenge. Injuries often occur when the bucket they handle to collect the sand accidentally falls on their feet incurring deep cuts on their legs and feet and thereby confining them at home and away from school for weeks and also requiring hefty amounts of money to treat the wounds. The other injuries or even death is related to them falling into uncovered pits masked by stagnant water. A third injury is obtained from being buried in tunnels in which they dig to find the gold. Some children reported losing friends and relatives in the mines. A surprising finding was that many of the children would not stop doing artisanal and small-scale mining because of these risks as there were no alternative options to earn income to pay their school fees and often their parents were too poor to shoulder that responsibility. Schwartz, Lee & Darrah (2021) report that many children suffered from occupational injuries at the mines in Democratic Republic of Congo and Ankenbrand, Welter & Engwicht (2021) also discovered many child injuries at the mines in Sierra Leone while Kumar, Wata & Muthuraman (2020) found hazardous and risky job child miners facing injuries, casualties and even death at the mines in Ethiopia. All these abuses, injuries and risks are as a result of the lack of application of the relevant laws to protect women and children working at the mines

Gender inequality is still persistent in the artisanal and small-scale mining sector in Sierra Leone. This is partly attributed to the policies in the sector that favour men. For instance,

the acquisition of licenses for mining is such that women are unable to meet the conditions and stress involved in obtaining them. Fees are quite high, and access to credit to undertake mining activities requires collateral which most women do not have (Hilson & Maconachie, 2020b). Ofosu, Torpor & Sarpong (2022) also note that there are cultural barriers that limit the meaningful participation of women in the sector. This includes access to land for mining activities which are normally denied women in favour of men, hence making women casual workers in the mines.

There are very strong policies and laws in Sierra Leone that protect the rights of women and children in all endeavours and at all levels in the country. What is lacking is its implementation or enforcement due to a number of factors such as lack of capacity of state and local institutions entrusted with the mandate to implement them. In addition, the complex labour relations in artisanal and small-scale mining coupled with the illegal and unregulated nature of the activities gives an advantage to mine owners or financiers to act contrary to the statutes.

The recognition of the immense contribution that children's income earned from artisanal and small-scale mining makes to the livelihoods of their families and retention in school should lead policymakers, academics and other stakeholders including children to discuss and agree on what tasks children should get involved in, how the tasks should be done and when and for how many hours children should be involved in artisanal and small-scale mining activities. Without the elimination of the causal circumstances that lead children into mining activities, it is not realistic and rational to prevent children from involvement in artisanal and small-scale mining in Sierra Leone.

In addition, the evidence from this study reveals the level of discrimination against women who are involved in artisanal and small-scale mining activities, including access to and control over productive resources including access to financial resources, land as concessions for mining activities, strengthened networks and skills.

5.3 Significance of these Findings

The findings of this study demonstrate that previously held views and scholarships on artisanal and small-scale mining did not adequately look deeply into the specific conditions affecting women and children as a collective group.

It is out of context and unrealistic to label children's involvement in artisanal and small-scale mining as child labour of the worst form and to enact policies and laws that prohibit the participation of children in the mines. Such policies and laws fail to recognise the unique circumstances of children in rural communities in Sierra Leone where some form of participation of children in rural endeavours is part of child training and children play an important role in contributing to family livelihoods and welfare.

Boys will characteristically get training from their father and girls will also receive theirs from their mother as part of the preparation towards adulthood and survival skills in such an unpredictable environment. It is not uncommon to have boys follow their father to the bush to hunt for game, cultivate crops or fell trees for firewood; just as it is common to find girls with their mother collecting firewood for cooking or to look for food or tender crops. Culturally, it is the duty of parents to train children and it is the duty of children to learn from their parents.

Income earned by children from artisanal and small-scale mining is a vital source for many families in the research communities, without which many families will struggle to

survive. In addition, income from mining activities is a big contributor to sustaining children in school. With dwindling agricultural yields in rural areas due to a variety of challenges and where there are few options or opportunities for income-generating activities, artisanal and small-scale mining plays a significant role in the livelihoods of families.

The findings of this study therefore suggest that rather than the government of Sierra Leone prohibiting children from involvement in artisanal and small-scale mining, their contribution should be recognised and systems and policies put in place for their safe and gainful participation.

A second significance of the findings is that the free quality education policy, welcome as it may be because of the opportunity given to children, especially in rural areas to access education as a right to build the necessary human capital for the development of Sierra Leone, needs adequate funding. In the research communities, an overarching reason for children's involvement in artisanal and small-scale mining is to meet education-related costs including costs that the free education policy has eliminated. This finding will therefore inform and influence the government on steps to take to bring about equity in access, facilities and resources between rural and urban areas, especially given that poverty levels and deprivation are higher in rural areas.

A third significance of these findings is the discrimination, abuses and unfair treatment that women and children suffer in artisanal and small-scale mining. These are either a result of cultural norms, gendered institutions, sexual and gender-based violence, unpaid and lower wages or lack of access to finances. This finding is not new; what is new is the pervasiveness and arrogance with which these are done, in the glaring presence of government officials and community leaders, who either turn a blind eye or condone them. This is because it is believed

that enforcement of the provisions of the artisanal and small-scale mining policy is the duty of national-level agencies. A re-evaluation of the provisions of country's artisanal and small-scale mining policy and a rethink of levels and types of responsibilities between Freetown-based and locally-based institutions is important in ensuring that vulnerable people like women and children involved in artisanal and small-scale mining activities are protected and supported.

Artisanal and small-scale mining is often thought to destroy rural agricultural livelihoods and compete with it for resources. The current study finds that artisanal and small-scale mining and rural agriculture are bedfellows. The significance of this is that one sector should not be developed at the expense of the other but rather policies should address the inadequacies in both so that they are able to reinforce each other to increase and improve rural livelihoods.

5.4 Recommendations for Application

Based on the findings of this study, artisanal and small-scale mining will continue to be carried out in many parts of Sierra Leone into the future. This is obvious as it immensely contributes to the livelihoods of many families despite some negative consequences that it poses especially to the environment, health and safety of the people who participate in its activities, including vulnerable women and children, and entire communities. It is not feasible to stop it and the only viable option is to have the Government of Sierra Leone and its agencies recognise, regulate, legalise and formalise its operation as well implement the needed regulatory, policy and institutional reforms to make any formalisation work. This will not be an easy way forward as it will demand the disengagement and disruption of 'rent-seeking' structures and interests that are benefiting from the current illegal and informal operations in

the artisanal and small-scale mining sector. Below is a schematic presentation of a suggested phased approach and model to recognising and reforming the sector in Sierra Leone.

There have been various discourses regarding the rich mineral wealth of the Republic of Sierra Leone. While such mineral wealth could have propelled the country out of poverty this does not seem to be the situation. Artisanal and small-scale mining activities are a vital source of livelihood to many rural communities often providing the needed employment and income to many families and often complementing farming activities (Ankenbrand, Welter & Engwicht, 2021; Hilson & Maconachie, 2020b; Huntington & Marple-Cantrell, 2022; Omotehinse & Ogunlade, 2022). Despite such importance to the economy of Sierra Leone, the artisanal and small-scale mining sector is still largely unregulated and illegal, and befuddled with environmental, governance and social problems confronting the communities, especially women and children, where the activities take place and the country in general (Hirons, 2020; Ofosu, Dittmann, Sarpong & Botchie, 2020).

Based on the findings obtained from the individual interviews and focus group discussions of the current study and the frame for the study, the following recommendations are being proposed:

Additional support to children's education beyond the Government Free Quality Education Programme. This will require a review of the cost components of the programme to be made free to all children regardless of location.

Recognising, legalising and formalising artisanal and small-scale mining with the needed policy and institutional reforms, including recognising children's participation in artisanal and small-scale mining.

Disengaging and disrupting networks, institutions and individuals who benefit from the informality of artisanal and small-scale mining.

Easing procedures and cost of obtaining licenses for mining to involve women.

Tackling environmental degradation that affect the livelihoods of women and children.

Addressing the social norms, traditional beliefs and cultural practices that marginalise women and children.

Enacting and enforcing laws on minimum wages at the mines.

Enforcing laws on injuries and offenses related to teenage pregnancies and early marriages.

Alternative employment programmes and skills acquisition for women in rural areas.

5.5 Recommendations for Future Research

This section enlists the recommendations of the current study for further future research. The current study involved interviews with male, female and child artisanal and small-scale mine workers. The aim of the study was to examine the lived experiences in mining activities and increase the understanding of the effects of these activities on women and children, how and why these effects are caused, and to explore how they could be minimised to offer women and children in mining communities' alternative livelihood and social options to improve their welfare.

The study has assisted in understanding the experiences and perceptions of the women and children regarding the role of artisanal and small-scale mining in supporting their livelihoods and the problems and challenges they face while indulging in these activities. The study gave invaluable insights into the daily lived experiences of rural women and children in artisanal and small-scale mining activities with regard to the use of the income earned from the

mines, how children are maintained in school with such earnings, the increased dignity of women who are able to contribute to household expenditure with earnings from the mines and the property and assets that are acquired for the family. Although this study has made a lot of valuable findings that would inform the knowledge and learning in the sector, it is recommended that further research be conducted in the following areas:

Determining the reason behind women's preponderance at the survival-oriented informal end of the artisanal and small-scale mining spectrum, where there is very little evidence of active choice, is an essential study subject regarding women's enterprise.

The study also revealed some of the challenges faced by women and children including sexual harassment and abuse, unequal pay between men and women, learning bad habits by children and limitations on women placed by social norms, traditional beliefs and cultural practices. More in-depth studies are needed on these issues to fully understand their effects on women and children in artisanal and small-scale mining in other parts of the country.

As the study is limited to only two districts, the study findings may not be generalisable for other jurisdictions that encounter a different geographical, political or social setting. Future research studies, therefore, should be conducted in other different regions of the country.

Future research studies need also to be conducted to comprehend the perceptions of all the related stakeholders like government officials, police officers, policymakers, and NGOs, to understand the challenges in implementing the formalisation of the artisanal and small-scale mining sector.

Further research is also needed to understand more completely the underlying factors causing the huge wage differentials between men on the one hand and women and children on

the other beyond the mere explanation in the differences in the physical strength of the two groups of workers.

Social norms, traditional beliefs and cultural practices play an important role in the participation of and benefits to women and children in artisanal and small-scale mining. A look into why these practices are quite pronounced in the mining activities would give indication as to how they would be tackled to increase benefits and access to land and other resources for them to participate on an equal basis with their adult male counterparts.

Findings of the current study suggest participation in mining activities rather supports maintain children in school as they are able to pay for education-related costs that their poor parents are unable to meet. An indepth study into the factors contributing to this finding could help government rethink its position on being against children's involvement in artisanal and small-scale mining and other sectors

There is an apparent contradiction between parents and teachers in perceptions about children's involvement in artisanal and small-scale mining activities. The different standpoints of parents and teachers need further looking into to find out the reasons and to see how both standpoints may be reconciled in the determining best interest of the child in continuing to stay in school.

5.6 Conclusions of the Research Study

Women and children as vulnerable groups have been impacted differently by their participation in artisanal and small-scale mining activities, with varying effects. They have been involved in especially diamond and gold mining, the reserves of which have all been well documented in Sierra Leone, a mineral-rich nation (Mabey, Li, Sundufu & Lashari, 2020). Diamonds, which were originally found in Sierra Leone in 1930 and are still the largest source

of foreign exchange for the nation (Maconachie & Conteh, 2021), continue to be the nation's most well-known export. Diamond and gold reserves are alluvial in origin in Sierra Leone, allowing artisanal and small-scale mining to exploit them. The conclusions in relation to the objectives of this study are outlined below.

5.6.1 Contribution to Marginalisation of Women and Children

In assessing the extent to which artisanal and small-scale mining activities have contributed to the marginalisation, deprivation and poverty entrapment of women and children through their informal participation in low-technology, labour-intensive processes, the study revealed that women constitute up to 30% of the daily workforce in the research communities and therefore are key to the success of these mines. However, these women are often confined to certain exclusive and particular roles in the activities of the mines and earn less than 25% of what the adult males earn, which promotes their marginalisation and leads to exploitative work arrangements (Leone, 2021).

Women and children are normally the last to be considered for work at the mines. Men are taken to work first, and any additional vacancies are then given to the women and children. This is due to the perception that men are more productive workers than women and children because of their physical advantage (Yakovleva, Vazquez-Brust, Arthur-Holmes & Busia, 2022).

Mining activities have degraded formerly fertile farmlands, polluted water bodies and therefore affected agricultural activities. This study highlighted that communities in which artisanal and small-scale mining takes place have both benefited economically as well as harmed their agricultural activities. As artisanal and small-scale mining takes place in rural

agricultural communities such harm has increased the vulnerabilities of women and children (Ofosu, Dittmann, Sarpong & Botchie, 2020).

Artisanal and small-scale mining occurs mostly in the off-season and complements subsistence agriculture which takes place during the rainy season. This study illustrated that a destruction of one by the other increases vulnerability, mostly to women and children (Ofosu, Dittmann, Sarpong & Botchie, 2020) who are always most affected by food shortages in the family. When mining activities adversely affect agricultural production, it is likely to increase food shortages at home as income from the mining activities alone may not be sufficient to ensure food availability all year round.

Gendered preconceptions, discriminatory practices, and ongoing gender disparities in access to land, training, and women's representation in decision-making procedures all significantly influence how women perceive artisanal and small-scale mining. The current study reveals that, despite the fact that women have benefited financially from their work in artisanal and small-scale mining, they remain largely excluded from more lucrative economic activities and leadership roles.

5.6.2 Dependence by Women and Children on Mining Income

In evaluating the extent to which the dependence by women and children on income from artisanal and small-scale mining activities for the livelihoods of their families have increased their vulnerability, this study found that participation of women and children in the high-income earning roles and activities has been marginal owing to the mining activities dominated by men in terms of labour and benefits (Rutherford & Buss, 2022). However, the income that women and children earn from being involved in some routine artisanal and small-scale mining activities immensely contributes to the livelihoods of their families where poverty

renders the family head, almost always a male, unable to afford the upkeep of the family (Buss & Rutherford, 2020). The study also found that the dignity of women has increased, and they are consulted on household decision-making processes on issues that affect them when they contribute to the family's livelihood.

This study illustrated that women and children are able to buy their basic needs such as clothes from the income they earn from mining activities and do not have to depend entirely on the husband and father for these needs. The need to find more money places additional burdens on them, especially women, who already have multiple household responsibilities.

The security issue of adolescence and pre-puberty girls are also becoming a greater issue for these marginalised women. The study has revealed that the menfolk who often look for new concessions to mine leave the women and children to look after the home while they go away to earn money. Adolescents and pre-pubescent girls in the absence of a father figure or strong male figure become victims of molestation, and assaults from outsiders or migrant workers (Stylo, De Haan & Davis, 2020).

Other forms of exploitation experienced by women and children include sexual exploitation, especially of women and adolescent girls. The rich male mine owners often take advantage of the vulnerable and desperate situation of the women and girls to ask for sex before they are given daily jobs (Kumar, Wata & Muthuraman, 2020). This puts the women and girls in a difficult position as such exploitative sexual arrangements often lead to undesirable consequences such as divorce, unwanted pregnancies, teenage pregnancies resulting in school dropout, and contraction of sexually transmitted diseases including gonorrhoea, syphilis and HIV.

Women and children are involved in the routine menial jobs in the mines and working for daily wages while the men do activities that have more financial rewards and hence there is inequality in the benefits that accrue to men on the one hand and women and children on the other.

The study also found that in these artisanal and small-scale mining communities, some women break their marriages and runway to the bigger cities in search of men who can provide them with better sustenance, in the situation where their husbands are unable to earn adequate income from the mining activities. The cycle of broken families continues as many of these women are abandoned by the men whom they had run away to in search of better lives and lack better opportunity to generate improved income (Stylo, De Haan & Davis, 2020). This has given rise to a series of 'the bring homes' and a range of destitute women who have to be either dependent upon relief from the NGOs or are forced to resort to darker professions like prostitution as the families refuse to take them back.

The women and child participants of this survey revealed that there is frequent violence against women and children by the mine owners. Women and children are normally abused with harsh and demeaning words that erode their dignity (Yakovleva, Vazquez-Brust, Arthur-Holmes & Busia, 2022). These insults psychologically and emotionally affect them especially when done in the presence of other workers. However, they are compelled to continue doing the work because they need the income from the activities. Insults for participating in these activities are quite degrading to their dignity.

Women and children often lack the means of capital to invest in artisanal and small-scale mining activities. The women and children indicated that the lack of especially financial resources to buy mining concessions was a big barrier to their gainful participation in the

activities (Hilson, Hilson, Siwale & Maconachie, 2018). In addition, financial institutions would not lend them money if they looked for financial resources to invest in the activities. They are therefore unable to benefit on the same terms as the men and have to continue to depend on the daily wages from their routine activities.

5.6.3 Economic Exploitation of Women and Children

In examining ways in which the realities of children and economic exploitation by the artisanal and small-scale mining sector affect their education and make it difficult to eliminate their involvement in child labour in mining activities, the study found that what constitutes a child is variable in the Sierra Leonean culture as the children who already have lost their father or both parents are given the status of an adult and the decision-maker as young as the age of 13 while someone at the of 30 years living with their parents is considered as a child and the opinions of the parents are taken into account in the decision-making process (James & Prout, 2015) of whether to be involved in the mining activities or not. In such patriarchal situations, many children, though legally prohibited from joining the mining activities are compelled to do so because of the lack of a father figure and the absence of enough money to maintain the family and their education (Fayiah, 2020). This definition of a child has justification in the new sociology of childhood theoretical framework which offers an understanding of childhood as a social construct rather than a biological phase in the development of the person (Probine, 2022) and therefore gives useful debate on child agency in children's participation in artisanal and small-scale mining activities.

The other discrimination and gendered norm are that while men can keep their finds of gold and diamonds, women have to hand over any minerals that they stumble upon because the mining lands have been acquired by the men and not the women and hence any minerals found

by women belongs to the owners of the land and not the finder. This discrimination keeps women at the periphery of the economic activities at the mines and the men appropriate most economic and financial benefits (Ibrahim, Rutherford & Buss, 2020).

Children are also exploited in many ways in their involvement in the artisanal and small-scale mining activities. Children are paid only 20,000- 25,000 leones as daily wages for their involvement in the 'pass bucket' activities. These earnings are lower than for adult women and adult men, even though they all work for the same number of hours doing the same activities.

On the other hand, while too frequently it is thought that the involvement of children in artisanal and small-scale mining activities leads to school drop-out, this study found that on the contrary, children maintain themselves in school from the income they earn from the mining activities without which they would have dropped out for failing to afford education-related costs such as uniforms, lunch and books. Children's involvement in rural mining activities is significantly reducing familial poverty and improving their possibilities for survival (Maconachie & Hilson, 2016). In addition, children and their families do not consider their involvement in artisanal and small-scale mining hazardous work any more than their participation in farmwork, which is considered as child training and child work.

Furthermore, women and children are adversely affected by social norms, cultural practices and traditional beliefs, which are produced and reproduced by gendered institutions. The study found that these combine to make women and children depend on the routine tasks in the mines. Women cannot acquire land concessions to undertake artisanal and small-scale mining activities; are not allowed to get near the mines when menstruating; are not allowed to

take part in better-paying tasks. These combined with the ‘triple burden’ of women in their household responsibilities keep them dependent on the tasks that men assign them.

5.6.4 Weaknesses in Regulations

In assessing the weaknesses in regulations that protect women and children, to find out what are the main financial leakages for education and health facilities from artisanal and small-scale mining activities, this study validated that even though in recent years, the government of Sierra Leone, donors and NGOs have advocated for the regulation of the artisanal and small-scale mining sector due to its growing importance as a non-farm rural activity, most mining activities still remain illegal and unregulated (Maconachie & Conteh, 2021). The lack of such regulation has consequences for women and children as they are the least protected.

Earlier policy pronouncements and articles defined artisanal and small-scale mining as a vocation practiced and occupied by businesspeople who were primarily pragmatists and, occasionally, renegades. This study found that in Sierra Leone, artisanal and small-scale mining combined with other economic activities like farming, make people utilise their discretionary income to pay for necessities like funeral expenses and school fees (Ankenbrand, Welter & Engwicht, 2021).

Due to the lack of or inadequate enforcement and implementation of provisions of the 2018 artisanal and small-scale mining policy, which seeks to streamline the activities of the sector, artisanal and small-scale mining in rural communities remain largely illegal and unregulated. The lack of regulation, enforced through monitoring, gives a freehand for mine owners to exploit women and children in many ways such as lower wages, abuse and sexual exploitation. Such monitoring is even made more difficult due to the rural nature of the mining

activities that sometimes place in remote locations and in situations where the agencies in charge do not have the requisite manpower or other financial resources to reach the mines.

The study realised that monitoring of the mining activities is over-centralised at the Freetown level with very little authority given to local level institutions which adds to the challenge of regular monitoring nationwide. As has been noted earlier, the Sierra Leonean police and other government officials take advantage of the lack of regulation to regularly harass and confiscate the gold and diamond finds made by the miners. Chiefs in the mining communities appropriate most of the income as custodians of the land notwithstanding the policy of sharing of the income outlined in the mining policy, which again, demonstrates the weaknesses in the regulations on artisanal and small-scale mining.

Laws and policies that seek to protect women and children such as gender- and child-related laws, including the recently passed Child Marriage Act, remain minimally enforced in the country, including in mining communities. The male miners therefore take advantage of the lack of enforcement or implementation to continue to molest women and children.

5.7 The Limitations of the Current Study

Since the current study adopted a qualitative approach to data collection, the data collected was analysed using manual thematic analysis. Thus, this analysis may have been affected by the researcher's bias which may in turn affect and manipulate the study results.

Further, the study is limited to the problems and effects of artisanal and small-scale mining on women and children in three communities in Sierra Leone, thus, the study findings obtained and the recommendations provided may not be suitable for large-scale mining or small-scale artisanal mining in other regions that are exposed to a different political, economic and regulatory scenario.

The study was conducted with particular groups in particular communities at a particular time. The findings may not be similar if the research is conducted with different groups in different communities at a different time.

The research participants did not allow for audio or video recordings of the individual interviews and focus group discussions to be made. Note-taking was the only recording done by the research assistants which could have missed out any vital information and data provided by the research participants but not captured in the notetaking.

5.8 Model for Implementation of Artisanal and Small-Scale Mining in Sierra Leone

As has been found out in the empirical studies of the literature review, artisanal and small-scale mining plays an important and growing role in the livelihoods of hundreds of millions of people in the global south, including Sierra Leone, especially in the rural areas where such mining activities prevail, and one that has the ability to support those without many other livelihood options for making a living while keeping a sizable portion of the wealth it generates inside national and local economies. Artisanal and small-scale mining also offers income through employment opportunities, raises revenue for governments through taxes and foreign exchange earnings (in cases where the mining activities are regulated), supports children's education and their contribution to household survival, offers women other livelihood options and is a dominant off-farm activity that complements the subsistence farming endeavours in most rural settings.

Notwithstanding these immense benefits, artisanal and small-scale mining also comes with health and safety, environmental, social and other ills that are worrying to many governments, policymakers and the academia. These ills, at the mine sites and in communities where the mining takes place, include land degradation affecting crop and plant production,

pollution of water bodies such as rivers for domestic and livestock consumption with chemicals or contaminated soils washed downstream, risks of injury or even death to miners, especially children, teenage pregnancies, early marriages of girls, sexual exploitation, children learning bad habits such as alcohol and drug abuse, including 'kush' in Sierra Leone, divorce and school drop out as a result of injury or abuse and other social disruptions.

Others include exploitative wages for especially women and children, delayed wage payments, marginalisation of women and children due to gendered work patterns, relegation of women and children due to social norms, traditional beliefs which are reinforced by gendered institutions. These positives and negatives about artisanal and small-scale mining also came out clearly in the individual interviews, focus group discussions and field observations in the data collection and analyses in Sierra Leone.

In order that benefits from artisanal and small-scale mining are meaningfully and responsibly increased, optimised and sustained while the negative effects on them are minimised or eliminated, the below operating model is recommended for implementation in the artisanal and small-scale mining sector, in an intentional, structured, reformed and phased approach in the laws, policies and institutions dealing with the artisanal and small-scale mining sector in Sierra Leone.

The first phase is to acknowledge and accept the current practices in artisanal and small-scale mining as not operating optimally and troubled with more negative issues than benefits to especially women and children involved in the sector. Artisanal and small-scale mining currently provides livelihoods directly or indirectly to hundreds of thousands of people in Sierra Leone and has a huge potential to contribute more to such livelihoods, especially in the rural areas, which can no longer depend on agricultural activities alone due to the challenges of

climate change, poor soils and other global forces. Artisanal and small-scale mining comes in as a big complement rather than a competition to subsistence agriculture. It also has the potential to contribute to the attainment of SDGs 1, 4, 5, 8 and 10, if properly implemented.

As in Figure 6 below, the current situation of the effects of artisanal and small-scale mining on women and children in Sierra Leone is characterisd by discrimination against them with regard to low wages, land ownership, mining rights, access to capital and access to mining licenses. In addition, women and children suffer abuses while working at the mines such as sexual and gender-based violence including men soliciting for sex, touching of private parts of girls and women, physical and verbal abuses causing psychological, emotional and mental stress, teenage pregnancies leading to school dropout and early marriages of girls jeopardising the future potentials of such girls. At the current situation, children also suffer from deviant behaviour acquired at the mine sites through learning of bad habits like smoking and drinking.

These negative aspects of the involvement of women and children in artisanal and small-scale mining lead to low self-esteem, sickness, school dropout and stigmatisation, as evidenced by the primary data and analysis done on this research in Kono and Bo districts.

In the communities where the research was conducted, participants portrayed the positive benefits of women and children's involvement in artisanal and small-scale mining activities. These include the income that they earn which helps them a lot and in so many ways, children are able to retain themselves in school as a result and would have otherwise dropped out, increased dignity of women due to their contribution to household expenditure, acquisition of skills that can be used later in life in other endeavours and the companionship that they enjoy while working in the mines. These positive effects enable the women and children to improve

their livelihoods, have access to education, acquire assets and have improved well-being in their communities.

Sadly, the way that present policy and regulatory solutions on artisanal and small-scale mining are implemented in Sierra Leone, the degree to which they use coercive rather than incentive-based and reform policy instruments, tends to make them inconsistent, unstable, misguided, unproductive or unsuccessful, and, in some circumstances, militaristic. The researcher argues that the main focus of such a reaction should be at the local or regional level rather than from the national level because these are the administrative levels where the operations of artisanal and small-scale mining are understood and carried out. This reform is necessary to translate laws and policies into real-world, real-life actions.

Furthermore, the creation of locally-based regulatory capacity is likely to be more effective in this setting because national governments frequently lack the regulatory ability in the remote places where artisanal and small-scale mining commonly happens. In order to demonstrate the possible advantages as well as the difficulties in putting into practice a locally-based strategy, the government of Sierra Leone needs to implement a community-based approach to artisanal and small-scale mining regulation.

In an effort to minimise the negative effects and optimise the positive ones, local government agencies, landowners, and miner networks have a tendency to adjust or alter national policy and "informally formalise" artisanal and small-scale mining, and/or establish and manage their own regulatory frameworks. By doing this, it is an admission that there are no substitutes for artisanal and small-scale mining and that it is very hard to eradicate the rising elite in artisanal and small-scale mining into influential roles in the community from national institutions and national policies.

While the government of Sierra Leone is more likely to advocate anti-artisanal and small-scale mining rhetoric and carry out sporadic crackdowns, regional or district authorities are more likely to be less rigid or to "sit on the fence." Local politicians and business people are frequently involved in the sector and value its employment and other economic benefits. Stated differently, the closer a government is to the people, the more likely it is to support, or at least tolerate, artisanal and small-scale mining and to oppose or not impose harsh national artisanal and small-scale mining laws or policies.

One significant problem in carrying out this role by national-level institutions is the inadequacy of national government resources and capabilities in a country like Sierra Leone. The difficulties in this area are particularly apparent when it comes to artisanal and small-scale mining, which can spread swiftly in terms of the regions and populations it involves. It also frequently takes place in places far from national capitals where access and communication are challenging. Regulatory agencies, such as agencies dealing with artisanal and small-scale mining, frequently lack adequate resources in comparison to the magnitude of the tasks at hand.

As revealed in this study, artisanal and small-scale miners frequently harbour mistrust towards external parties, such as officials from the national government. This is a reflection of both the illegality of artisanal and small-scale mining and the need to preserve information about the whereabouts of important mineral deposits. Artisanal and small-scale miners have limited ability to participate in and adhere to regulatory systems, and rules and regulations frequently prove ineffectual because of the administrative and financial strain they inflict on governments and small-scale miners alike.

The evidence from this study also demonstrates that artisanal and small-scale miners have frequently been dissatisfied with government bureaucracy or inaction even in cases when

they have made persistent steps to "formalise" their operations, such as by registering cooperatives and/or acquiring a mining licenses at the national level. Miners are left with no choice but to mine illegally in this situation. The discrepancy between official policy and legislation on the one hand, and reality in artisanal and small-scale mining regions on the other, can be explained by the issues in figure 6 below.

Inaccurate information about the realities of artisanal and small-scale mining on the ground and a lack of awareness of the needs and worries of these miners among national governments and foreign "experts," who frequently plan and oversee artisanal and small-scale mining-related actions, are other relevant issues. In order to put into effect changes that would benefit all parties involved, including the government and other institutions, as well as women, children, and other participants in the artisanal and small-scale mining sector, the model below suggests sector improvements.

It also identifies a major obstacle to creating and implementing successful policy interventions, as well as to sustaining regulatory regime coherence and support, as being the absence of reliable information on the realities faced by artisanal and small-scale miners. The contentious and often politicised aspect of artisanal and small-scale mining operations is significant to note. For instance, vested political and economic interests may pressure the government to enact or scrap certain laws in order to further their own agendas or to undermine artisanal and small-scale mining operations. It is plausible that people in positions of political or economic power frequently have a negative attitude against artisanal mining and may try to change public opinion of the sector in order to benefit themselves.

Therefore, the realities of artisanal mining are not adequately addressed by government programmes. With the below implementation model, it is feasible to create a more cohesive

and consistent set of policies that will both efficiently control the environmental and social costs of artisanal and small-scale mining while maximising its potential to offer widespread economic and social possibilities, particularly in areas where such opportunities would otherwise be scarce, and simultaneously efficiently control its social and environmental costs. Based on the discussions with artisanal and small-scale miners and its effects on women and children so far, it appears clear that regulation needs to be heavily concentrated at the local or district level in order to be effective. This is because these areas have the knowledge of the actual conditions faced by artisanal and small-scale miners and may also have the capacity to implement policies and regulations in the remote areas where artisanal and small-scale mining is common.

Simultaneously, it is imperative to guarantee that artisanal and small-scale mining or other interests motivated by the pursuit of maximising immediate financial gain do not commandeer local regulatory institutions, disregarding health, safety, environmental, or social issues, and that artisanal and small-scale miners benefit from a level of stability and predictability that is necessary for them to invest in safer and less harmful mining techniques as well as to safeguard their livelihoods.

To ensure consistency and a balance of social, economic, and environmental factors, local authorities should be given a significant role in regulating artisanal and small-scale mining while also keeping some level of central monitoring from the national government in Freetown.

Implementing the model below requires some form of regulation. Regulation in this sense should not be misconstrued with formalisation in its current thinking which embodies both legalisation and regulation. Formalisation requires that the operations of artisanal and

small-scale mining are legalised through the acquisition of mining licenses and land, both through tedious and bureaucratic processes mostly at the national levels or both at the national and local levels. It is the National Minerals Agency (NMA) in Freetown, the national capital, that is responsible for issuing mining licenses after approval of the application by the Minerals Advisory Board (MAB) and the Minister of Mines and Mineral Resources, a long, winding process. It is therefore not realistic that small groups or individuals in remote locations are able to go through these processes, especially women, most of whom neither have the resources nor the networks, connections, and time to go through them. These processes will therefore need to be decentralized to the district level. Some of the research participants indicated that they had never been to Freetown, and could therefore find it impractical to deal with these processes.

Local chiefs have a big say in the granting of land for mining activities, and most of the financial benefits go to them. As the cultural practices do not generally allow women to own land in Sierra Leone, women will find it impractical to acquire such land unless clandestinely through a male. Uneasy as it may be, allowing the status quo of the immense power that the chiefs have in appropriating benefits to themselves will continue to undermine any reforms. It will therefore require courage of conviction to disrupt such powers in order to increase benefits to vulnerable groups such women and children.

Regulation, if local authorities at the districts are empowered and responsible for its guidelines and implementation, will review and address the current practices that disadvantage vulnerable groups such as women and children involved in artisanal and small-scale mining activities.

A first step in this direction is to recognise and appreciate that the participation of children in artisanal and small-scale mining cannot be eliminated through laws and policies,

and that their participation is beneficial to both the child and the child's family, through the invaluable contribution that the money earned supports family livelihoods and promotes retention of the children in school by enabling the procurement of school-related materials and the provision of lunch while at school. The evidence on the ground, and the extant literature, demonstrate that children combine school attendance with their involvement in mining activities and the situation is not a binary between attending school or being at the mines.

The second aspect of the regulation is to streamline the wages that women and children earn through their participation in artisanal and small-scale mining activities. The individual interviews and focus group discussions amply demonstrate that women and children are discriminated against in the amount of money that they receive for the work they do as against their male counterparts who earn considerably higher, sometimes for doing the same activities. Streamlining exploitative wages can only be supervised and enforced at the local level from the local authorities and not through periodic and ad hoc visits from Freetown.

On top of streamlining wages for women and children is to address the abuses against them at the mines. Some women and girls involved in artisanal and small-scale mining activities suffer sexual abuse and exploitation, making them lose self-esteem and dignity, drop out of school due to pregnancy or early marriages or acquire sexually transmitted diseases consequently. Strict compliance to certain safety provisions of working in the mines is needed to eliminate or minimise this incidence.

With regard to male children, provisions in the regulations should ensure that mine owners do not tolerate their participation during school contact hours, but only after school sessions, over the weekends and on public holidays. The children should also be given tasks that are not meant for adults such as digging, excavation and tunneling. They could be allowed

to get involved in crushing panning and running errands for the miners. Their involvement in the ‘kosobo’ should be such that the weight of the sand is not too heavy for them to handle. In addition, there should be checks to ensure that children do not learn and acquire habits such as drinking and smoking, including the use of ‘kush’ which is widespread in Sierra Leone.

Important is the review and reform of the gendered norms affecting women and children and the gendered institutions reinforcing the norms such as the government agencies and traditional structures. Without such reforms of the norms, cultural practices and traditional beliefs, implementing the other components of this model will not yield the desired outcome.

In summary, Table 6 identifies issues to do with the current negative effects affecting women and children in artisanal and small-scale mining in Sierra Leone as: discrimination against women and children, sexual exploitation and abuse, teenage pregnancies, early marriages, low wages, transactional sex and substance abuse by children. These negative effects lead to low esteem, sickness, school dropout and stigmatisation.

The review and reform will increase benefits such as income, school attendance and retention, improved dignity, increased family support, skills training and companionship of women and children involved in artisanal and small-scale mining activities. These positive effects on women and children lead to improved livelihoods, access to education, and acquisition of assets. These reforms will also require a participatory approach involving all stakeholders including the national government agencies in charge of mining, the regional and district authorities, artisanal and small-scale miners including women and children representatives, chiefs, non-governmental organisations (both local and international) and other local stakeholders in artisanal and small-scale mining.

5.9 Implementation Sequence

5.9.1 Phase 1 of Reforms:

Analyses of the current situation in the artisanal and small-scale mining sector

Recognition of the participation of children in artisanal and small-scale mining activities.

Development of a regulatory framework to be applied at the local level

Stakeholder discussions and review of the framework

5.9.2 Phase 2 of Reforms:

Legal, regulatory, policy and institutional reforms

Disruption of local powers' disproportionate gain from artisanal and small-scale mining activities

Systems, processes and procedures for local-level enforcement and monitoring

These reforms should have as its objectives:

Reduction in time and cost of acquiring registration/licenses.

Land tenure reforms that will enable women access land.

Review of cultural practices and traditional beliefs negatively impacting women and children.

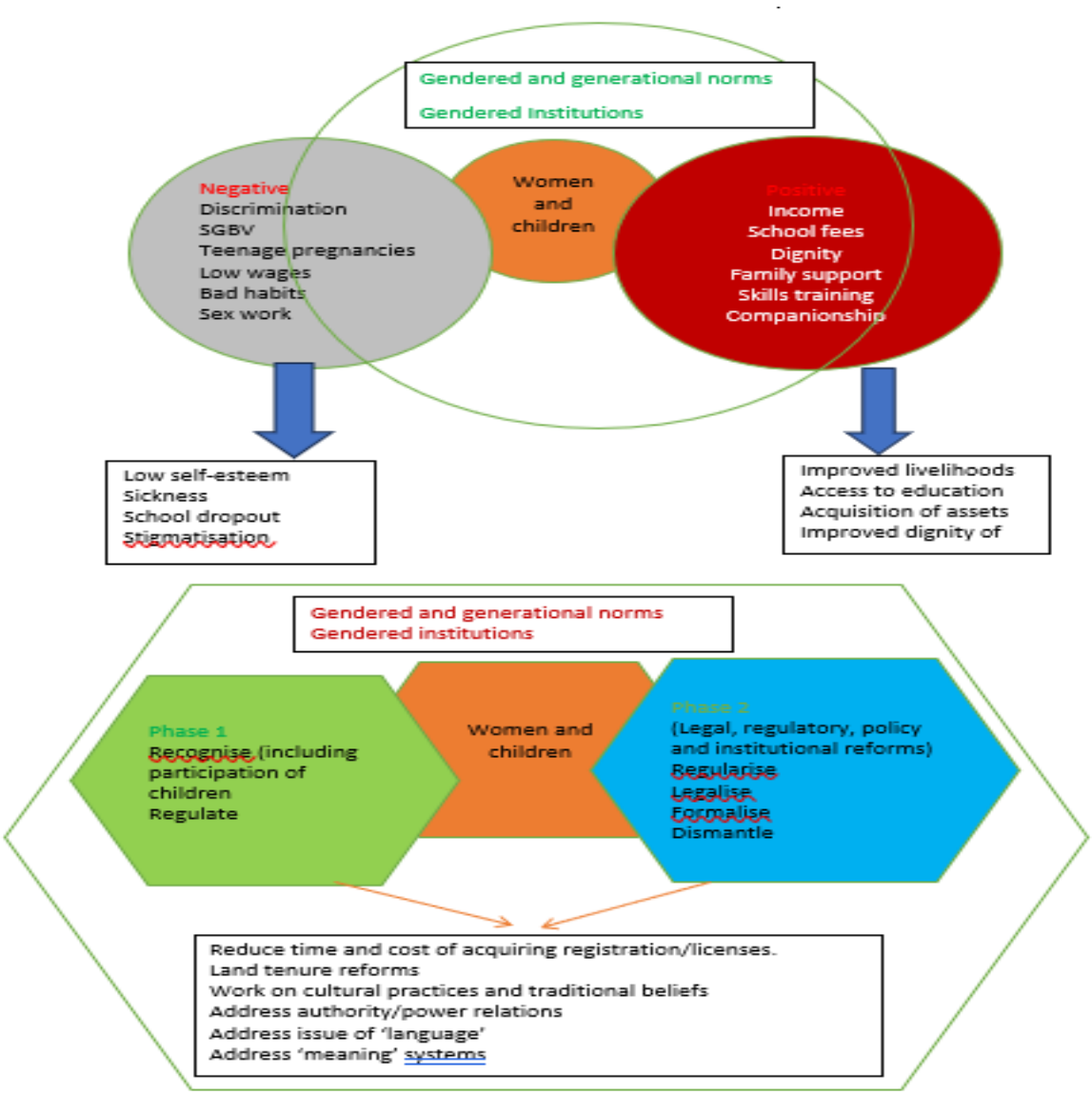
Address the authority/power relations working against women and children.

Address the issue of language relegating women and children to the background.

Address the 'meaning' systems that do not recognise the important contribution of women and children.

Figure 6

Model on Implementation of Artisanal and Small-Scale Mining Reforms in Sierra Leone



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APPENDICES

Appendix A: Formatting Appendices

Open-Ended Individual Interview Questionnaire

BILLY ABIMBILLA – REAF FORM

RESEARCH TOOLS

OPEN-ENDED INDIVIDUAL INTERVIEW QUESTIONNAIRE

I) Introduction to the Interview Process – For Adults

I am a doctoral student of Unicaf University and I am conducting a research into the effects of artisanal and small-scale mining in this community. You have been identified as a citizen of this community where artisanal and small-scale mining takes place. I understand that you have lived in this community for the last 5 years and also participate in the activities of artisanal and small-scale mining. My discussion with you today is to understand your lived experience on the mining activities and how these activities affect women and children, both bad and good. This will be a discussion and open-ended questions will be asked that will allow you to provide free-form answers. but I will be asking for clarifications and probing further to have a deeper understanding of your responses. I will appreciate you answering all the questions I ask but should you not feel comfortable answering any of them you are not obliged to do so. Your answers will be recorded anonymously, and you have the right to stop participating in the interview at any time or afterwards, if you so wish. I will ask for permission to take notes and also do audio recording. If you do not understand anything I say please ask me to explain further or repeat the question. This discussion will take between 45-60 minutes. I will give you 20,000 leones (less than US$2) at the end of the interview to buy something for using your time.

Pause: Do you have any questions to ask so far or need any clarifications?

Note-taking and audio recording of information on the interview

1) Name of community_____Date_____
2) Age_____ Gender_____ Code_____Start time_____End time_____

Examples of questions to elicit multiple responses from each individual in response to an open-ended question

a) General information on artisanal and small-scale mining

"Who are the ones mostly involved in artisanal and small-scale mining activities in this community? why?"

"why is it these categories of people who are involved in the activities?"

"Name all the effects of artisanal and small-scale mining activities you can think of"

Pause: Any questions for me so far?

b) Benefits and disadvantages of artisanal and small-scale mining

Who are the ones who benefit or suffer from these effects?

"Why is it that these categories of people who are most affected?"

"What other effects can you think of?"

c) Effects on women and children

"How are women and children differently affected by the artisanal and small-scale mining activities?

"Think about what ways perceptions and experiences of vulnerability feed into the experiences of women and children involved in mining activities?"

"What are the impacts of working within mining activities for women and children, especially in providing opportunities and restrictions on their lives?"

"In what ways do women and children experience greater or less forms of vulnerability within mining communities?"

"How do they perceive the barriers to greater forms of autonomy/empowerment/benefits?"

Pause: Do you have any questions on our discussion so far?

d) Other information on artisanal and small-scale mining activities

"What other information can you think of regarding the effects of artisanal and small-scale mining on women and children?"

"Do you have any last thoughts?"

We have come to the conclusion of our discussions, and I want to summarise the main points. Do you agree to the summary? Thank you so much for your time.

II) Introduction to the Interview Process – For Children

Good morning, child. How are you feeling today? I am going to have a discussion with you on mining activities as I understand that you have been carrying out some activities in the mines from time to time and you also know of other children involved in the mining activities. I will not tell anybody about the answers you provide me in this discussion. Your answers will be recorded without your name, and you have the right to stop participating in the interview at any time or afterwards, if you so wish. I will ask for permission to take notes and also do audio recording. The discussions will not take very long. You don't have to answer all the questions if you do not have information on all of them. Feel relaxed and free to answer the questions as you feel appropriate as this discussion is not a test, it is only a conversation between you and

me. If at any time you do not understand anything I ask please let me know so that I repeat it or say it in a different way.

Pause: Do you have any questions to ask so far or need any clarifications?

Note-taking and audio recording of information on the interview

1) Name of community_____Date_____
2) Age_____ Gender_____ Code_____Start time_____End time_____

Examples of questions to elicit multiple responses from each child in response to an open-ended question

a) Involvement in mining activities and reasons for doing so

"Are you involved in any activities in the mines?"

"What type of activities are you engaged in?"

"why are you working in the mines instead of being at home or at school?"

"How does mining help you to be in school or to be out of school?"

"What do you like about being involved in the mining activities?"

"What benefits do you and your family get from you working in the mines?"

"what don't you like about being in the mines? "why?"

Pause: Do you have any questions to ask me about our discussions so far?

b) Other children's involvement in mining activities and problems for involvement

"Do you know of other children involved in activities in the mines?"

"Are they involved in similar or different activities as you?"

"Have they ever spoken about liking or disliking their involvement and why?"

"Have you or other children faced any problems while working in the mines?" "what type of problems?"

Pause: Do you have any questions to ask me about our discussions so far?

c) Children's thoughts about the feelings of their parents and teachers

If given the choice, will you like to continue working in the mines or stop? "why?"

"What do your parents and teachers say about you working in the mines?"

"Do you think that you would like to continue or stop working in the mines when you grow up?" "why?"

d) Other information on artisanal and small-scale mining activities

"What other information can you think of regarding children's involvement in mining activities?"

"Do you have any last thoughts?"

We have come to the conclusion of our discussions, and I want to summarise the main points. Do you agree to the summary? Thank you so much for your time.

Focus group Discussion Tool

BILLY ABIMBILLA – REAF FORM

RESEARCH TOOLS

FOCUS GROUP DISCUSSIONS PROCESS

1) Introduction to the Focus Group Discussion Process - Adults

I am a doctoral student of Unicaf University and I am conducting a research into the effects of artisanal and small-scale mining in this community. This group has been identified as existing in this community where artisanal and small-scale mining takes place. I understand that the group members have lived in this community for the last 5 years and also participate in the activities of artisanal and small-scale mining. My discussion with you today is to understand your lived experiences on the mining activities and how these activities affect women and children, both bad and good. This will be a discussion and open-ended questions will be asked that will allow you to provide free-form answers, but I will be asking for clarifications and probing further into the answers to have an indepth understanding of your responses. There will be no right or wrong contributions. I will appreciate you answering all the questions I ask but should you not feel comfortable answering any of them you are not obliged to do so. Your discussions will also be recorded anonymously. I will ask for permission to take notes and to do audio recording. If you do not understand anything I say please ask me to explain further or repeat the question. Anyone of you has the right to withdraw your contributions at any time during the discussions or afterwards. This discussion will take between 90-120 minutes. There will be two other women to co-moderate the discussions with me as I do not speak the local language. Refreshments of healthy dietary and nutritional

choices, including fruits and water, will be served during the discussions. I will also encourage everyone to feel relaxed, comfortable and contribute to the discussions.

Pause: Do you have any questions or need clarifications so far?

Note-Taking:

Name of community_____Date_____

Name of Group_____Number in group_____Age range_____ Gender of group_____ Code_____Start time_____End time_____

Sample Discussion process:

a) **Background: Group Impressions and Experience with Artisanal and small-scale mining activities**

"Introduce yourself and think about the presence of artisanal and small-scale mining activities in this community and estimate how long this has been going on."

"Think back to when you first became involved with artisanal and small-scale mining activities. What were your first impressions of these activities?"

"What has been particularly helpful about the artisanal and small-scale mining activities to your family and community?"

"What has been disappointing about these activities? In what ways"

"Given your experience in the mining activities, what do you like about them?"

Pause: Do you have any questions or need clarifications so far?

b) **Effects of artisanal and small-scale mining on women and children**

"What has your child who is involved in artisanal and small-scale mining like about the experience in these activities?

"Think about what ways perceptions and experiences of vulnerability feed into the experiences of women and children involved in mining activities?"

"What are the impacts of working within mining activities for women and children, especially in providing opportunities and restrictions on their lives?"

"In what ways do women and children experience greater or less forms of vulnerability within mining communities?"

"How do they perceive the barriers to greater forms of autonomy/empowerment/benefits?"

Pause: Do you have any questions or need clarifications so far?

c) Additional information on effects of artisanal and small-scale mining activities

"What other information can you think of regarding the effects of artisanal and small-scale mining on women and children?"

"Is your family life any different because you are involved in artisanal and small-small scale mining? How?"

"If you had a chance to give advice to the Government, what would you say about artisanal and small-scale mining?"

"Based on your experiences, would you recommend involvement in artisanal and small-scale mining to other women and children? Why? Why not?"

Pause: Do you have any questions or need clarifications so far?

d) Conclusions

We are now concluding our discussions so I would like to summarise the main points of the discussions. "Have I correctly conveyed the main points of our discussion today?"

"Are there any concluding or additional thoughts on the effects of artisanal and small-scale mining on women and children that any one of you would like to add?"

2) Introduction to the Focus group Discussion Process – Children

I am a student collecting information to find out how mining activities affect women and children in this community. I understand that some of you children are also involved in the mining activities, so today's discussion is going to be fun about your experience in the mines. I will not be mentioning names in my report about which child said what, and no answers will

be wrong or right, so feel free and relaxed to participate in the discussions. If any of you does not feel like answering some questions you may choose to do so or if at any point any of you does not feel like continuing with the discussion you may also choose to stop. Do not interrupt another child when they are saying something if even you do not agree with that child. If I ask a question that any of you does not understand please ask me to repeat or say it in another way for you to understand. Our discussion will take between one hour and one-and-a-half hours. After the discussions, candies and soft drinks of healthy dietary and nutritional choices, including fruits and water, will be served to thank you for your time. Please let me know if you are allergic to any of the candies or soft drinks so that I can change something you prefer for you. NB: the facilitation of the focus group discussions will include one of the children's teachers so as to make the children more comfortable with the discussions and for the teacher to make any further clarifications to the children, if need be.

Pause: Do you need any clarifications or have any questions on the instructions so far?

Note-Taking:

Name of community_____Date_____

Name of Group_____Number in group_____Age range_____ Code_____Start time_____End time_____

Sample Discussion process:

a) **Background: Children's Group Impressions and Experience with Artisanal and small-scale mining activities**

The discussion with the children will take three forms.

The first will be a general practice discussion where some open-ended questions on everyday activities they know or see will be posed to build rapport. This will be a ‘free narrative’ for the children to settle-in and for me to understand the communications style of the group. As much as possible I will use non-verbal behaviours such as keeping eye contact with them and head-nodding. After the ‘free narrative’ section, I will then follow up with open-ended questions specific to mining activities.

b) The second phase will be getting into the real issues on mining activities with questions such as:

“Has any of you been involved in mining activities and what has been your experience in such activities?”

“What do you like/gain from your involvement in the mining activities and why?”

“what do you not like/bad experience you remember from your involvement in the activities?”

“what is the worst thing about your involvement in mining activities that you can think of? “why is it the worst thing to you?

“Do you have friends or siblings who are involved in mining activities? “what do they think about their involvement in the mining activities”?

“What are your parents/teachers’ feelings about your involvement in the activities?”

In listening to the responses from the children, I will interject with words such as “tell me more”, “that was terrific”, “great”, “cool”. This is meant to encourage them to say more as well as encourage others to talk.

c) The third phase will be in the form of pictorial representation of the experiences and views about the children's participation in mining

Paper and crayons will be provided for the children and each child will be asked to draw one diagram of a good thing about their involvement in mining activities and one bad thing. The drawing will be done when the children are not tired. The children will be asked to explain the drawings and say why they chose to draw those pictures and compare them with their experiences in the mines and say which represent their experiences more. These interpretations will further be probed into for clarifications and deeper answers through follow up questions. The drawings are important because they can be used as ice-breakers to make the children relax and establish rapport especially when the drawings are funny. They can also act as prompts or triggers for further discussions and could also assist the children gain more control over the discussions.

During the group discussions, if a child does not respond to a question, it will be rephrased to ensure better understanding. If a child answers, a neutral prompt such as 'do you have any other ideas?' or 'anything else?' will be used to probe for more information. If a child's response is ambiguous, then clarification will be sought. The moderator will typically thank each child by name following a contribution to facilitate participation and transcription.

d) After the discussions, the children will be given a short questionnaire which will ask for details of their date of birth and gender. It will also include three questions about the experience of taking part in the research. The first question to be asked them is to rate how much they enjoyed taking part in the research on a scale ranging from *not at all* (1) to *very much* (5). The second question will be asked whether they felt that they had a chance to say

everything they wanted to say and will be rated on a scale from *no, almost nothing* (1) to *yes, everything* (5). The third question to be asked is whether they believed that the research was a good way for people of their age to talk about important topics on their involvement in mining activities and will be rated on a scale from *definitely not* (1) to *yes, definitely* (5). A final open-ended question will be asked the children if they would like to comment on any other aspect of taking part in the research.

Direct Field Observation Tool

BILLY ABIMBILLA – REAF FORM

RESEARCH TOOLS

DIRECT FIELD OBSERVATION PROCESS- TRANSECT WALK

a) Introduction to the Observation Process- Adults Only

Name of community_____Date_____Time_____

Permission to be sought from community members and other stakeholders for an overt observation of community phenomena associated with artisanal and small-scale mining. All information to be coded and kept confidential. I will need to be clear about the purpose of the walk to focus people's attention on the features pertinent to artisanal and small-scale mining in the community. I will also be spontaneous when opportunities arise to gather rich and varied data of features observed. With permission from the relevant people, I will take an audio recorder, camera and video-recorder to capture observations and interviews along the route. Direct field observations will use transect walks to observe mining phenomena in the communities where the research will take place. There will also be non-verbal observations of participants during the focus group discussions.

b) Using the transect walk tool for direct field observations

A transect walk is a tool for describing and showing the location and distribution of resources, features, landscape, main land uses along a given transect on artisanal and small-scale mining activities. These will include any polluted water bodies and streams, degraded farmlands, pits used for mining etc. The transect walk exercise involves speaking with people in the community and active observation of the environment to capture key information (e.g., assets, hazards, livelihoods) that is then used in the classification of zones (i.e., land use,

vulnerability, social conditions). Conversations along the way will offer the opportunity to hear perspectives from a diverse array of community members and to gain insight on how the physical and social characteristics and relationships have changed over time.

A route will be chosen between two points through the community. The route chosen will attempt to pass through as many of the different physical areas, land-use zones and social statuses of the community as possible. If the geographic location and/or number of participants is large, the group may be divided into teams and multiple routes may be walked. Materials include participant notebooks and pens.

The transect walk can take between 1 and 3 hours, depending upon the distance to cover, the number of participants and the different stops and conversations along the way. I will let participants know that the transect walk is to help me conduct research into the effects of artisanal and small-scale mining activities on women and children. This is the opportunity to focus people's observations and conversations on artisanal and small-scale mining. Together with the participants, we will walk along the route stopping from time to time as the features change to note what is being observed.

c) Questions to pose to participants while doing the transect walk

I will be asking the participants questions such as

"What do you see?"

"Who do you see and what are they doing?"

"What physical, economic and social assets are being used?"

"What assets are not being used?"

I will identify and talk to people along the way to ask about structures, activities and landscape being observed, including:

"What else typically happens?"

"Are there daily or seasonal variations?"

Pause: Do you have any questions or clarifications at this point?

d) Translating the observations into sketches

I will be drawing a map and sketching key features/land markers/assets as they are encountered.

After the walk, I will sit down with participants in a suitable place and facilitate the participants to compile a diagram or table of the main features observed and encourage contributions from all of them. I will facilitate the determination of distinct zones, and list each zone's distinct assets such as water bodies, degraded lands, location of equipment, schools etc. This diagram or table becomes a guide for discussion and the identification of learning points with questions such as:

"What did you discover that was new about artisanal and small-scale mining?"

"What surprised you?"

"What types of resources appear to be most valued, most used, least used and why?"

"What patterns do you see on artisanal and small-scale mining activities?"

"What opportunities has your transect walk revealed about artisanal and small-scale mining activities?"

"How do these activities relate to your frustrations or aspirations for yourself and your community?

Pause: Do you have any questions or need clarifications at this point?

e) Observations of Participants

This will comprise of non-verbal observations such as a change in tone when speaking, emphasis on particular issues, gestures, hesitation when speaking and disagreements on particular issues. Other observations will be differences in issues discussed between men, women and children, who sits next to whom, silence on particular issues and length of time used to discussed particular matters. Permission will be sought to use video-recorders to take observations from the groups. The participant observations will include descriptive (observing anything and everything), focused (observations supported by interviews) and selective ones (focusing on different type of activities and noting the differences).

Sample Gatekeeper Letter

UU_GL - Version 2.0

Gatekeeper letter

Address: The Chief, Tombodu Village, Kono
Date: 27 June 2022
Subject: Permission to Recruit Participants

Dear XXX

I am a doctoral student at Unicaf University of Zambia.

As part of the award of my degree, I am carrying out a study on the effects of artisanal and small-scale mining on women and children.

I am writing to inquire whether you would be interested in and willing to support my request to recruit participants for this study.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using discussions in groups for both adults and children, and person-to-person interviews to conduct the study. The study will also make observations of things such as land use, water bodies, school attendance found in the community.

I will be conducting this study to find out how small-scale mining has affected women and children. The findings from this study will help all of us who are interested in small-scale mining activities understand what women and children who take part in the activities go through and to suggest ways to support them if they are badly affected or to help them gain higher benefits. My teacher for this study is Dr Alison Wilde of the Unicaf University.

I humbly request you to organise a meeting with already existing women and men's groups as well as permit me to recruit the participants for the study. The meeting will last for about 2 hours to explain the purpose of the study and to answer any questions from the participants.

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Billy Abimbilla

Sample Guardian Informed Consent Form

UU_GIC - Version 2.1

Guardian Informed Consent Form
Part 1: Debriefing of Participants

Student's Name: Billy Abimbilla
Student's E-mail Address: babimbilla@gmail.com
Student ID #: R1902D7678159
Supervisor's Name: Dr Alison Wilde
University Campus: Unicaf University in Zambia
Program of Study: UUZ: PhD Doctor of Philosophy
Research Project Title: An Examination of the Effects of Artisanal and Small-Scale Mining on Women and Children in Kono and Bo Districts of Sierra Leone – A Case Study

Date: 04 July 2022

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

I will be conducting a study on mining activities in this community to find out how women and children are affected by these activities - whether good or bad. The results from this study will enable you the community members, government, the mining companies and other interested organisations understand better what actions to take to support the women and children by solving the problems that face them and increasing the benefits to them. Your child was chosen as a participant after a meeting with community leaders to explain why I am doing the study. S/he was identified as being involved in mining activities and therefore may be able to provide the information that I need for this study. Whatever information is provided will be kept as a secret and your child's name will not be mentioned. Participation is voluntary and can be withdrawn at any time during the discussion or afterwards. There is no physical harm to your child by participating.

The above-named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, **Billy Abimbilla**, ensure that all information stated above is true and that all conditions have been met.
Student's Signature: Billy Abimbilla

UU_GIC - Version 2.1

Guardian Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant's legal guardian.
Student's Name: Billy Abimbilla
Student's E-mail Address: babimbilla@gmail.com
Student ID #: R1902D7678159
Supervisor's Name: Dr Alison Wilde
University Campus: Unicaf University in Zambia
Program of Study: UUZ: PhD Doctor of Philosophy
Research Project Title: An Examination of the Effects of Artisanal and Small-Scale Mining on Women and Children in Kono and Bo Districts of Sierra Leone – A Case Study

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that the participant is free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of the participation to this study. I understand that all data will remain anonymous and confidential, unless stated otherwise.

1, [ ], the legal guardian of [ ] allow and provide consent that [ ] can willfully participate in the study.

1, [ ], the legal guardian of [ ] have been assured that

verbal consent given by [ ] will also be taken before the study.

Sample Informed Consent Form

UU_IC - Version 2.1

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name: Billy Abimbilla
Student's E-mail Address: babimbilla@gmail.com
Student ID #: R1902D7678159
Supervisor's Name: Dr Alison Wilde
University Campus: Unicaf University in Zambia
Program of Study: UUZ: PhD Doctor of Philosophy
Research Project Title: An Examination of the Effects of Artisanal and Small-Scale Mining on Women and Children in Kono and Bo Districts of Sierra Leone – A Case Study

Date: 4 July 2022

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

I will be conducting a study on mining activities in this community to find out how women and children are affected by these activities - whether good or bad. The results from this study will enable you the community members, government, the mining companies and other interested organisations understand better what actions to take to support the women and children by solving the problems that face them and increasing the benefits to them. You were identified as a participant after I met with community leaders and explained why I am conducting the study. I also had a follow up meeting with the group that you belong to and got to know of your involvement in mining activities. It was therefore thought that you may be able to provide the information that I need for this study. Whatever information is provided will be kept as a secret and your name will not be mentioned. In addition, participation is voluntary and there is no physical or psychological harm. You may choose to withdraw from participating at any time if you choose to do so during the interview or afterwards.

The above-named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Billy Sambo Abimbilla, ensure that all information stated above is true and that all conditions have been met.

Student's Signature: Billy Abimbilla

UU_IC - Version 2.1

Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant(s)

Student's Name: Billy Abimbilla
Student's E-mail Address: babimbilla@gmail.com
Student ID #: R1902D7678159
Supervisor's Name: Dr Alison Wilde
University Campus: Unicaf University in Zambia
Program of Study: UUZ: PhD Doctor of Philosophy
Research Project Title: An Examination of the Effects of Artisanal and Small-Scale Mining on Women and Children in Kono and Bo Districts of Sierra Leone – A Case Study

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation to this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's name: _____

Participant's Signature:_____

Date:

If the Participant is illiterate:
I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual hasngiven consent freely.

Witness's Print name: [ ]

Witness's Signature:_____

Date:

UREC Provisional REAF Approval

REAF_DSPA - Version 1.0

UNICAF UNIVERSITY	UREC USE ONLY:_____
RESEARCH ETHICS APPLICATION FORM	Application No:
DOCTORAL STUDIES PROVISIONAL APPROVAL	Date Received:

The Provisional Approval - Research Ethics Application Form (REAF) should be completed by Doctoral level candidates enrolled on Dissertation stage 1.

This form is a **provisional approval** which means that the UREC committee has accepted the initial description of the project but this is conditional as changes may have to be implemented following Dissertation Stage 2 and piloting in Dissertation Stage 3.

This is a conditional offer and acceptance of the project needs to be verified and confirmed upon completion of the Research Ethics Application Form in Dissertation Stage 3.

Important Notes:

• An electronic version of the completed form should be uploaded by the student to the relevant submission link in the VLE. Student's supervisor will then review the form and provide feedback commentary. Once supervisor's initial approval is given then the supervisor will forward this to doctoral.studies-aa@unicaf.org, for provisional approval by the Unicaf University Research Ethics Committee (UREC).

• Please type your answers and do not submit paper copy scans. Only PDF format documents should be submitted to the committee.

• If you need to supply any supplementary material, not specifically requested by the application form, please do so in a separate file. Any additional document(s) should be clearly labelled and uploaded in the relevant VLE link.

• If you have any queries about the form, please address them to your dissertation or project supervisor.

Student's Name: Billy Abimbilla
Student's E-mail Address: babimbilla@gmail.com
Student ID #: R1902D7678159
Supervisor's Name: Dr Alison Wilde
University Campus: Unicaf University in Zambia
Program of Study: UUZ: PhD Doctor of Philosophy
Research Project Title: An Examination of the Effects of Artisanal and Small-Scale Mining on Women and Children in Kono and Bo Districts of Sierra Leone – A Case Study

1. **Please state the timelines involved in the proposed research project:**

Estimated Start Date: 1 February 2021 **Estimated End Date**: 30 June 2021

The research project a. Project Summary: In this section please fully describe the purpose and underlying rationale for the proposed research project. Ensure that you pose the research questions to be examined, state the hypotheses, and discuss the expected results of your research and their potential.
It is important in your description to use plain language so it can be understood by all members of the UREC, especially those who are not necessarily experts in the particular discipline. To

The purpose of this qualitative case study is to examine the adverse effects of extractive activities, especially artisanal mining, on women and children in selected districts in the Republic of Sierra Leone. Women constitute 50.11% and children under 18 years 53% of the population (Population & Housing Census, 2015) but previous studies in extractive activities have not focused on them. Women and children are special groups of interest because they are considered as part of the vulnerable groups who suffer disproportionately as a consequence of the extractive activities (Bansah, Dumakor-Dupey & Sakyi-Addo, 2017). Many children often drop out from school to carry out child labour and do hazardous work at exploitative wages to support the livelihoods of their families (Rutherford, 2020). While involvement in mining activities may enable women to have access to financial resources to support their families, dependency ties and pre-existing social relations and norms contribute to limit the empowerment of women and their full participation in extractive activities. These relationships and norms also keep them at the periphery of benefits from extractive activities by restricting them to gendered roles (Ibrahim, Rutherford & Buss, 2020). Hence, questions for this research will include: In what ways do perceptions and experiences of vulnerability feed into the experiences of women and children involved in mining activities? What are the impacts of working within mining activities for women and children, especially in providing opportunities and restrictions on their lives? In what ways do women and children experience greater or less forms of vulnerability within mining communities, and how do they perceive the barriers to greater forms of autonomy/empowerment/benefits? The research results will contribute to additional knowledge on specific issues relating to women and children in mining communities and suggest policy amendments. It is also expected that child-rights organisations and feminist activists will use the findings to work towards solving issues arising and increase benefits accruing to women and children.

that effect please ensure that you fully explain / define any technical terms or discipline-specific **terminology (maximum 300 words +/- 10%)**

b. Significance of the Proposed Research Study and Potential Benefits:

Outline the potential significance and/or benefits of the research (maximum 200 words).

The findings from this research will highlight and bring to attention the specific challenges that children and women face in communities where extractive activities take place. The findings will also add additional knowledge and insights on the everyday lived experiences of women and children involved in mining activities and further improve existing knowledge on this topic. This research has potential significance as it will provide much deeper understandings of the experiences of women and children affected by mining activities, increase knowledge and understanding on the short and long term effects of mining activities on women and children and show why this matters to families, communities and society at large. This research will also increase understanding of why and how women and children are involved in informal mining activities and how they contribute to its spread across rural and peri-urban Sierra Leone. The findings will also provide a justification to Government, mining companies and other stakeholders to implement schemes tailored to the specific needs and aspirations of women and children who are a significant part of the labour force in informal mining activities in Sierra Leone.

2. Project execution: a.

a) Type of project. The following study is an:

☒experimental study (primary research)
☐desktop study (secondary research)
☐desktop study using existing databases involving information of human/animal subjects
☒Other

If you have chosen 'Other' please Explain:

This research is a qualitative case study which will involve government agencies, NGOs, mining companies and people living in mining communities in two selected districts in Sierra Leone as participants to share their lived experiences of the effects of mining activities on women and children through individual interviews and focus group discussions.

b. Methods. The following study will involve the use of:

Method	**Materials/Tools**
☒Qualitative	☒Face to Face Interviews

	☐Phone Interviews
	☒Face to Face Focus Groups
	☐Online Focus Groups
	☒Other*
☐Quantitative	☐Self-administered Questionnaires
	☐Online Questionnaires
	☐Experiments
	☐Tests
	☐Other *

*If you have chosen 'Other' please Explain:

Open observations on mining sites will also be conducted in the mining communities after written consent from the community chiefs, management of mining companies and government officials, to physically see effects of the mining activities.

4. Participants

a. Does the Project involve the recruitment of participants?

☒YES **If YES, please complete all following sections**

☐No If NO, please directly proceed to Question 5.

Note: The definition of "participation" includes active participation, such as when participants knowingly take part in an interview or complete a questionnaire.

b. Relevant Participant Details of the Proposed Research

Please state the number of participants you plan to recruit, and describe important characteristics such as: demographics (e.g. age, gender, location, affiliation, level of fitness, intellectual ability etc). It is also important that you specify any inclusion and exclusion criteria that will be applied (e.g. eligibility criteria for participants).

Number of participants 70
Age range From 10 To 60
Gender ☒Female
☒Male

Elegibility Criteria

Inclusion criteria

20 participants for the focus group discussions and 50 to be observed in mining communities where they live and/ or have been involved in mining activities. Participants include community members and other stakeholders

Exclsion Criteria

Men, women, boys and girls who are visiting extractive communities temporarily and not living there for more than a year and/or not involved in the extractive activities.

Disabilities:

Community members and other stakeholders with forms of disabilities such as sight, hearing or physical impairment with appropriate support such as sign-language and braille. Those with learning disabilities will be excluded.

Other relevant information (maximum 100 words)

2-3 women, aged between 20-60 years from the research locations with previous group discussions facilitation skills identified by their groups, will be trained to co-moderate the focus group discussions to offer perspectives on issues raised and to also make it easier and more comfortable for the participation of other group members. The co-moderators will help with language translation, serve soft drinks as refreshment to participants and validate the discussions. The wearing of face masks, social distancing and hand washing prior to holding the discussions will be encouraged to make them covid19 safe.

c)Recruitment Process for Human Research Participants:

Please clearly describe how the potential participants will be identified, approached and recruited (maximum 200 words).

d.

A meeting will be arranged with chairpersons of community groups, families of children in mining activities, representatives of relevant government ministries, mining companies and NGOs in the research locations, to present the research aims and to identify and discuss any envisaged challenges and other influences that could affect active participation in the group discussions. Groups of 3-4 members will be voluntarily formed preferably of single sex groups to enrich the discussions and to bring out the different perspectives and experiences. 15% over-recruitment of participants will be done to take care of members who may not turn up due to lack of interest or other commitments (Nyumba, Wilson, Derrick & Mukherjee, 2018). Before proceeding further, signed written informed consent will be obtained from participants or their witnesses by explaining the procedures and any risks, confidentiality and anonymity and security of information to be collected. Written consent will be obtained from legal guardians of children under 18. Local covid-19 safety laws and protocols for holding group meetings will be complied with.

Relationship between the principal investigator and participants:

Is there any relationship between the principal investigator (student), co-investigators(s), (supervisor) and participant(s)? For example, if you are conducting research in a school environment on students in your classroom (e.g. instructor-student).

☐YES ☒NO

If YES, please specify (maximum 100 words).

5. Further Approvals

Are there any other approvals required (in addition to ethics clearance from UREC) in order to carry out the proposed research study?

☒YES ☐NO

If YES, please specify (maximum 100 words).

All the necessary signed and written informed consent will be gained from individuals and institutions who have a stake in mining activities at the community level before any data is collected. These include but are not limited to village chiefs, the district councils, the ministry of local government, NGOs, mining companies, the ministry of mines and energy and school head teachers.

6. Potential Risks of the Proposed Research Study

Are there any potential risks, psychological harm and/or ethical issues associated with the proposed research study, other than risks pertaining to everyday life events (such as the risk of an accident when travelling to a remote location for data collection)?

☐YES ☒NO

If YES, please specify (maximum 150 words):

7. Application Checklist
Please mark √ if the study involves any of the following:

☒Children and young people under 18 years of age, vulnerable population such as children with special educational needs (SEN), racial or ethnic minorities, socioeconomically disadvantaged, pregnant women, elderly, malnourished people, and ill people.

☒Research that foresees risks and disadvantages that would affect any participant of the study such as anxiety, stress, pain or physical discomfort, harm risk (which is more than is expected from everyday life) or any other act that participants might believe is detrimental to their wellbeing and / or has the potential to / will infringe on their human rights / fundamental rights.
☐Risk to the well-being and personal safety of the researcher. Administration of any substance (food / drink / chemicals / pharmaceuticals / supplements / chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.
☐Results that may have an adverse impact on the natural or built environment.

8. Final Declaration by Applicants:

(a) I declare that this application is submitted on the basis that the information it contains is confidential and will only be used by Unicaf University and Unicaf University Research Ethics Committee (UREC) for the explicit purpose of ethical review and monitoring of the conduct of the research proposed project as described in the preceding pages.

(b) I understand that this information will not be used for any other purpose without my prior consent, excluding use intended to satisfy reporting requirements to relevant regulatory bodies.

(c) The information in this form, together with any accompanying information, is complete and correct to the best of my knowledge and belief and I take full responsibility for it.

(d) I undertake to abide by the highest possible international ethical standards governing the Code of Practice for Research Involving Human Participants, as published by the UN WHO Research Ethics Review Committee (ERC) on http://www.who.int/ethics/research/en/ and to which Unicaf University aspires to.

(e) In addition to respect any and all relevant professional bodies' codes of conduct and/or ethical guidelines, where applicable, while in pursuit of this research project.

(f) I understand it is my responsibility to submit a full REAF application during Dissertation Stage 3 to UREC. If a REAF application is not submitted my project is not approved by UREC.

(g) I fully acknowledge that this form does not constitute approval of the proposed project but it is only a provisional approval.

☒I agree with all points listed under Question 8

Supervisor's Name: **Alison Wilde**
Date of Application: **5 February 2021**

Important Note:
Please now save your completed form (we suggest you also print a copy for your records) and then submit it to your UU Dissertation/project supervisor (tutor). **In the case of student projects, the responsibility lies with the Faculty Dissertation/Project Supervisor.** If this is a student application, then it should be submitted via the relevant link in the VLE. Please submit only electronically filled in copies; do not hand fill and submit scanned paper copies of this application.

☒Before submitting your application, please tick this box to confirm that all relevant sections have been filled in and the information contained is accurate to the best of your knowledge.

REAF Billy Abimbilla
PhD O20267G20173

UREC Final REAF Approval

REAF_DS- Version 3.1 AP ☐

UNICAF UNIVERSITY	UREC USE ONLY:_____
RESEARCH ETHICS APPLICATION FORM	Application No:
DOCTORAL STUDIES	Date Received:

Student's Name: Billy Sambo Abimbilla
Student's E-mail Address: babimbilla@gmail.com
Student ID #: R1902D7678159
Supervisor's Name: Dr Alison Wilde
University Campus: Unicaf University in Zambia
Program of Study: UUZ: PhD Doctor of Philosophy
Research Project Title: An Examination of the Effects of Artisanal and Small-Scale Mining on Women and Children in Kono and Bo Districts of Sierra Leone – A Case Study

1. **Please state the timelines involved in the proposed research project:**

Estimated Start Date: 4 July 2022 **Estimated End Date**: 15 July 2022

2. **External Research Funding (if applicable):**

2.a. Do you have any external funding for your research?

☐YES ☒NO

If YES, please answer questions 2b and 2c.

2.b. List any external (third party) sources of funding you plan to utilise for your project. You need to include full details on the source of funds (e.g. state, private or individual sponsor), any prior / existing or future relationships between the funding body / sponsor and any of the principal investigator(s) or co-investigator(s) or student researcher(s), status and timeline of the application and any conditions attached.

None

2.c. If there are any perceived ethical issues or potential conflicts of interest arising from applying or and receiving external funding for the proposed research then these need to be fully disclosed below and also further elaborated on, in the relevant sections on ethical considerations later on in this form.

None

3. The research project

3.a. Project Summary:

In this section fully describe the purpose and underlying rationale for the proposed research project. Ensure that you pose the research questions to be examined, state the hypotheses, and discuss the expected results of your research and their potential.

It is important in your description to use plain language so it can be understood by all members of the UREC, especially those who are not necessarily experts in the particular discipline. To that effect ensure that you fully explain/define any technical terms or discipline-specific terminology (use the space provided in the box).

The purpose of this qualitative case study is to examine the adverse effects of extractive activities, especially artisanal and small-scale mining, on women and children in two districts of the Republic of Sierra Leone. Women constitute 50.11% and children under 18 years 53% of the population (Population & Housing Census, 2015) but previous studies in extractive activities have not focused on them. Women and children are special groups of interest because they are considered as part of the vulnerable groups who suffer disproportionately as a consequence of the extractive activities (Bansah, Dumakor-Dupey & Sakyi-Addo, 2017). Many children often drop out from school to carry out child labour and do hazardous work at exploitative wages to support the livelihoods of their families (Rutherford, 2020). While involvement in mining activities may enable women to have access to financial resources to support their families, dependency ties and pre-existing social relations and norms contribute to limit the empowerment of women and their full participation in extractive activities. These relationships and norms also keep them at the periphery of benefits from extractive activities by restricting them to gendered roles (Ibrahim, Rutherford & Buss, 2020). Hence, questions for this research will include: In what ways do perceptions and experiences of vulnerability feed into the experiences of women and children involved in mining activities? What are the impacts of working within mining activities for women and children, especially in providing opportunities and restrictions on their lives? In what ways do women and children experience greater or less forms of vulnerability within mining communities?, and how do they perceive the barriers to greater forms of autonomy/empowerment/benefits? The research results will contribute to additional knowledge on specific issues relating to women and children in mining communities and suggest policy reforms. It is also expected that child-rights organisations and feminist activists will use the findings to work towards solving issues arising and increase benefits accruing to women and children. The results will also contribute to increased awareness by communities of the negative impacts on women and children's involvement in small-scale mining activities and how to minimise them and increase the benefits to them. The mining sector employs a large number of people, including women and children in the informal operations. Results from this research could lead to greater protection of vulnerable people such as women and children.

3.b. Significance of the Proposed Research Study and Potential Benefits:

Outline the potential significance and/or benefits of the research (use the space provided in the box).

The findings from this research will highlight and bring to attention the specific challenges that children and women face in communities where extractive activities, especially artisanal and small-scale mining, take place. The findings will also add additional knowledge and insights on the everyday lived experiences of women and children involved in mining activities and further improve existing knowledge on this topic. This research has potential significance as it will provide much deeper understandings of the experiences of women and children affected by mining activities, increase knowledge and understanding on the short and long term effects of mining activities on women and children and show why this matters to families, communities and society at large. This research will also increase understanding of why and how women and children are involved in informal mining activities and how they contribute to its spread across rural and peri-urban Sierra Leone. The findings will provide a justification to Government, mining companies and other stakeholders to implement schemes tailored to the specific needs and aspirations of women and children who are a significant part of the labour force in informal mining activities in Sierra Leone. In addition, the findings will contribute to the ongoing debate on whether to formalise and regulate the sector or leave it as informal and deregulated.

4. Project execution:

4.a. The following study is an:

☒experimental study (primary research)

☐desktop study (secondary research)

☐desktop study using existing databases involving information of human/animal subjects

☒Other

If you have chosen 'Other' please Explain:

This research is a qualitative case study which will involve people living in mining communities in selected districts in Sierra Leone as participants to share their lived experiences of the effects of mining activities on women and children through individual interviews, focus group discussions and direct observations. This intrinsic single case study will use primary data collected from the field to analyse and draw conclusions from the results obtained using qualitative data analysis.

4.b. Methods. The following study will involve the use of:

Method	**Materials/Tools**
☐Qualitative	☒Face to Face Interviews
	☐Phone Interviews
	☒Face to Face Focus Groups
	☐Online Focus Groups

☒Other*

☐Quantitative

☐Self-administered Questionnaires
☐Online Questionnaires
☐Experiments
☐Tests
☐Other *

*If you have chosen 'Other' please Explain:

Direct and open observations will also be conducted in the mining communities after consent from the community chiefs to physically see effects of the mining activities such as land degradation and polluted water sources. Video recordings and photographs will be taken of physical phenomena observed and this will contribute to the triangulation and analysis of other information collected through focus group discussions and and individual interviews of participants. Any harmful discoveries will be reported to the chiefs and other community leaders for discussions and appropriate actions.

5. Participants:

5 a. Does the Project involve the recruitment and participation of additional persons other than the researcher(s) themselves?

☒YES **If YES, please complete all following sections.**
☐NO **If NO, please directly proceed to Question 7.**

5 b. Relevant Details of the Participants of the Proposed Research

State the number of participants you plan to recruit, and explain in the box below how the total number was calculated.

Number of participants 120

There will be 75 participants for the focus group discussions, 24 for the individual interviews and 21 to be observed in mining communities where they live and/or have been involved in mining activities.15% over-recruitment of participants will be done to take care of members who may not turn up. Two or three women with facilitation skills will be recruited and trained to co-moderate the focus group discussions.

Describe important characteristics such as: demographics (e.g. age, gender, location, affiliation, level of fitness, intellectual ability etc). It is also important that you specify any inclusion and exclusion criteria that will be applied (e.g. eligibility criteria for participants).

Age range From 10 To 60

Gender ☒Female
☒Male

Elegibility Criteria

Inclusion criteria

Men, women, boys and girls who reside in communities where mining activities take place and must have experienced the effects of mining activities and/or have been involved in the mining activities themselves

Exclsion Criteria

Men, women, boys and girls who are visiting mining communities temporarily and not living there for more than a year and/or not involved in the mining activities.

Disabilities:

Women, men, boys and girls with sight, hearing or physical impairment will be included. Those with mental disabilities will not participate in the study.

Other relevant information (maximum 100 words)

Sign-language and braille support will be given to those with sight and hearing disabilities. Two or three women will be present to assist the student moderate the discussions and ensure that women feel more comfortable to discuss but the actual focus groups discussions will be administered and led by the student. These women will offer perspectives on issues raised and interpret the discussions between the research student to the focus group members and the other way round.

5 c. Participation & Research setting:

Clearly describe which group of participants is completing/participating in the material(s)/tool(s) described in 5b above (use the space provided in the box).

The focus group discussions will be conducted with small groups of men, women, girls and boys separately. The men and women's groups will be standalone groups but those for the boys and girls will be mixed. The ages of the boys and girls will range from 10-17 years and those for the women and men will be from 18-60 years. Field work experience indicates that if women and men are mixed together, it is likely that the men will dominate the discussions and sideline the women's active involvement and participation. There will be 15 focus groups for the discussions. 5 will be children's groups, 5 women's groups and 5 men's group. The individual interviews will consist 6 boys, 6 girls, 6 men and 6 women. The interviews and discussions will be continued until saturation is reached for each individual group The lead researcher will do the observation of some characteristics of the mining phenomena and take photos and videos together with one research assistant.

5 d. Recruitment Process for Human Research Participants:
Clearly describe how the potential participants will be identified, approached and recruited (use the space provided in the box).

Recruitment of participants will be done by contacting chairpersons of identified existing community groups, community gatekeepers such as chiefs, relevant government ministries and NGOs to explain the purpose of the research and to set up separate initial meetings with their groups to recruit participants voluntarily and allow for more elaboration on the research purpose and provide space for questions. 15% over-recruitment of participants will be done to take care of members who may not turn up due to lack of interest or time. Two or three women will also be recruited and trained to co-moderate the focus group discussions. These co-moderators, besides encouraging women to actively participate in the discussions and preventing men from dominating, will help with issues such as technical challenges, language and idioms translation, serve soft drinks of healthy dietary choices for refreshment, ensure compliance with covid-19 protocols.

5.e. Research Participants Informed Consent.
Select below which categories of participants will participate in the study. Complete the relevant Informed Consent form and submit it along with the REAF form.

Yes	No	Catgories of participants	Form to be completed
☒	☐	Typically Developing population(s) above the maturity age *	Informed Consent Form
☒	☐	Typically Developing population(s) under the maturity age *	Guardian Informed Consent Form

* Maturity age is defined by national regulations in laws of the country in which the research is being conducted.

5.f Relationship between the principal investigator and participants.
Is there any relationship between the principal investigator (student), coinvestigators(s), (supervisor) and participant(s)? For example, if you are conducting research in a school environment on students in your classroom (e.g. instructor-student).

☐YES ☒NO

If YES, specify (use the space provided in the box).

6. Potential Risks of the Proposed Research Study.

6 a. i. Are there any potential risks, psychological harm and/or ethical issues associated with the proposed research study, other than risks pertaining to everyday life events (such as the risk of an accident when travelling to a remote location for data collection)?

☒YES ☐NO

If YES, specify below and answer the question 6 a.ii

Mining companies may view the research with suspicion of having the potential to negatively impact on their activities and may want to interfere with the research. Anonymity and confidentiality may be an issue with the focus group discussions as participants may disclose contributions made by identified individuals to the public. Disagreements, or conflicts of opinion may arise during the discussions There may also be risk to the researcher from stakeholders of vested interests in mining. Children under 18 years may not talk or be guaranteed confidentiality if accompanied by a legal guardian and it may be difficult to get a written consent from a legal guardian due to high rates of illiteracy. Participants of the focus groups may be at risk of contracting covid-19 if the necessary protocols and precautions are not taken.

6 a.ii Provide information on what measures will be taken in order to exclude or minimise risks described in 6.a.i.

Explanations will made to mining companies operating in the research locations that the research is an academic process that may actually help them in their mining operations through better understanding of the issues that affect children and women. Further, consent from such stakeholders will be obtained to conduct the research by explaining the harmless purpose of the research. The risk of lack of anonymity and confidentiality may be curtailed by agreeing on 'ground rules' for the discussions including the need to maintain strict confidentiality in the discussions and to explain that if participants do not feel comfortable giving some information in public they have the right to withhold it or withdraw it afterwards. Disagreements and conflicts of opinion will be resolved by listening to each viewpoint and moderating the discussions to avoid any distress for participants and ensuring that the discussions of sensitive issues are kept at an appropriate level by not foreclosing them or pushing them too far, and respectfully moving on to a different topic for discussion. Guardians accompanying children to the meetings may be politely asked to stay away from the meetings, and consent for children under 18 years obtained verbally or in recorded form from guardians. Agreement will also be obtained from children under the age of 18 years as a sign of respect for them as minors. Participants will be provided food and soft drinks of healthy dietary and nutritious choices, including water and fruits, during the discussions to facilitate a relaxed, friendly exchange of experiences and to encourage active participation. Covid-19 precautions will be discussed and agreed for the wearing of face masks, practicing of social distancing in the seating arrangements and washing of hands before each group discussion is held. The researcher will provide face masks to participants

6 b. Choose the appropriate option

		YES	NO
i.	Will you obtain written informed consent form from all participants?	☒	☐
ii.	Does the research involve as participants, people whose ability to give free and informed consent is in question?	☒	☐
iii.	Does this research involve participants who are children under maturity age? **If you answered YES to question iii, complete all following questions. If you answered NO to question iii, do not answer Questions iv, v, vi and proceed to Questions vii, viii, ix and x.**	☒	☐
iv.	Will the research tools be implemented in a professional educational setting in the presence of other adults (i.e. classroom in the presence of a teacher)?	☒	☐
v.	Will informed consent be obtained from the legal guardians (i.e. parents) of children?	☒	☐
vi.	Will verbal assent be obtained from children?	☒	☐
vii.	Will all data be treated as confidential? If NO, explain why confidentiality of the collected data is not appropriate for this proposed research project, providing details of how all participants will be	☒	☐

	informed of the fact that any data which they will provide will not be confidential.		
viii.	Will all participants /data collected be anonymous? If NO, explain why and describe the procedures to be used to ensure the anonymity of participants and/or confidentiality of the collected data both during the conduct of the research and in the subsequent release of its findings.	☒	☐
ix.	Have you ensured that personal data and research data collected from participants will be securely stored for five years?	☒	☐
x.	Does this research involve the deception of participants? If YES, describe the nature and extent of the deception involved. Explain how and when the deception will be revealed, and who will administer this debrief to the participants:	☐	☒

6 c. i. Are there any other ethical issues associated with the proposed research study that are not already adequately covered in the preceding sections?

☐YES ☒NO

If YES, specify (maximum 150 words).

6.c.ii Provide information on what measures will be taken in order to exclude or minimise ethical issues described in 6.c.i.

N/A

6.d. Indicate the Risk Rating.

☐High ☒Low

7. Further Approvals

Are there any other approvals required (in addition to ethics clearance from UREC) in order to carry out the proposed research study?

☒Yes ☐No

If YES, specify (maximum 100 words).

All the necessary informed consent will be gained from individuals and institutions who have a stake in mining activities at the community level before any data is collected. These include but are not limited to village chiefs, the district councils, the ministry of local government, the ministry of mines and energy and school head teachers.

8. Application Checklist

Mark X if the study involves any of the following:

☒Children and young people under 18 years of age, vulnerable population such as children with special educational needs (SEN), racial or ethnic minorities, socioeconomically disadvantaged, pregnant women, elderly, malnourished people, and ill people.

☐Research that foresees risks and disadvantages that would affect any participant of the study such as anxiety, stress, pain or physical discomfort, harm risk (which is more than is expected

from everyday life) or any other act that participants might believe is detrimental to their wellbeing and / or has the potential to / will infringe on their human rights/fundamental rights.

☐Risk to the well-being and personal safety of the researcher.

☐Administration of any substance (food / drink / chemicals / pharmaceuticals / supplements / chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.

☐Results that may have an adverse impact on the natural or built environment.

9. Further documents
Check that the following documents are attached to your application:

		ATTACHED	NOT APPLICABLE
1	Recruitment advertisement (if any)	☐	☒
2	Informed Consent Form / Guardian Informed Consent Form	☒	☐
3	Research Tool(s)	☒	☐
4	Gatekeeper Letter	☒	☐
5	Any other approvals required in order to carry out the proposed research study, e.g., institutional permission (e.g. school principal or company director) or approval from a local ethics or professional regulatory body.	☒	☐

10. Final Declaration by Applicants:
(a) I declare that this application is submitted on the basis that the information it contains is confidential and will only be used by Unicaf University for the explicit purpose of ethical review and monitoring of the conduct of the research proposed project as described in the preceding pages.

(b) I understand that this information will not be used for any other purpose without my prior consent, excluding use intended to satisfy reporting requirements to relevant regulatory bodies.

(c) The information in this form, together with any accompanying information, is complete and correct to the best of my knowledge and belief and I take full responsibility for it.

(d) I undertake to abide by the highest possible international ethical standards governing the Code of Practice for Research Involving Human Participants, as published by the UN WHO Research Ethics Review Committee (ERC) on http://www.who.int/ethics/research/en/ and to which Unicaf University aspires to.

(e) In addition to respect any and all relevant professional bodies' codes of conduct and/or ethical guidelines, where applicable, while in pursuit of this research project.

☒I agree with all points listed under Question 10

Student's Name: Billy Sambo Abimbilla

Supervisor's Name: Dr Alison Wilde

Date of Application: 10 June 2022

Important Note:
Save your completed form (we suggest you also print a copy for your records) and then submit it to your UU Dissertation/project supervisor (tutor). In the case of student projects, the responsibility lies with the Faculty Dissertation/Project Supervisor. If this is a student application, then it should be submitted via the relevant link in the VLE. Please submit only electronically filled in copies; do not hand fill and submit scanned paper copies of this application.

App. REAF
DS_Abimbilla_O322

Appendix B: Useful Resources

Factors that Drive Children into Working in the ASMs

Causal Factors	Rank
Poverty	1
Lack of parental care/control	2
Alternative income source/livelihood	3
Broken home (e.g., divorce, family issues)	4
Low interest in school (e.g., poor performance, no support, desire for money)	5
School environment (e.g., unfriendly, poor infrastructure, care)	6

Source: Owusu, Afrifa & Obeng (2022)

ASM Social, Environmental, Economic and Health and Safety Challenges

Social	**Environmental**	**Economic**	**Health and safety**
Crime	Deforestation	Lack of collateral security	High fatality rate
Prostitution and spread of HIV/AIDS	Pollution of water bodies	Difficulty in obtaining information for planning purposes	Rapid spread of diseases
Alcoholism and substance abuse	Soil erosion	Rent capturing difficulty	Lack of protective clothing
Neglect of human rights	Siltation of rivers	Lack of education and professionalism	Unsupported or poorly supported workings
Conflict and lack of security	Dust and noise production	High grading	Unsafe working tools
Destruction of cultural and ethical value	Land degradation	Failure to adapt to technological change	Main reliance on natural ventilation
Destruction of cultural heritage sites	River diversion	Mineral rush effect (Tragedy of Commons)	Poor lighting
Gender discrimination	Mercury and cyanide pollution	Retardation of economic growth	Uncoordinated transportation
Limited social amenities	Destruction of biodiversity	Short sighted planning	Exposure to dust and dangerous gases
Child labour	Poor disposal of mine tailings	Corruption	Insufficient safe drinking water

Source: Zvarivadza (2018)