UNIVERSITY OF EDUCATION, WINNEBA

ENVIRONMENTAL RIGHTS ISSUES IN UNREGULATED ARTISANAL SMALL SCALE MINING AND ITS IMPACT ON SELECTED COMMUNITIES IN THE MPOHOR DISTRICT

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A thesis in the Centre of Conflict, Human Rights and Peace Studies, Faculty of Social Sciences Education, submitted to the School of Graduate Studies in partial fulfillment

of the requirements for the award of the degree of Master of philosophy (Conflict, Human Rights and Peace Studies) in the University of Education, Winneba

APRIL, 2021

DECLARATION

STUDENT'S DECLARATION

I **Pamela Ekua Payne,** declare that this work except quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my original work. And it has not been submitted, either in part or whole, for another degree elsewhere.

Signature: …….

Date:……..

SUPERVISOR'S DECLARATION

The preparation and presentation of this work were supervised per the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.

Supervisor's Name: **Dr. Isaac Eshun**

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Date: ……

ACKNOWLEDGEMENTS

This work would not have been possible without the support, assistance and encouragement of others. I thank my supervisor Dr Isaac Eshun, for his persistent encouragement, support, guidance, submissions, observations and advice throughout the research. His patience during the beginning, progress, and delivery of this work was an incredible source of inspiration and encouragement.

I wish to acknowledge the contributions of all lecturers of the Faculty of Social Sciences. Exceptional thanks also go to my parents, the late Mr Augustine Payne and Miss Mary Addea for their care and love through my educational life. Also, I appreciate Mr Paul Ewusi, Mrs Anita Asare, Mr George Payne and Mr and Mrs Mensah Abrompa Aidoo for their encouraging advice and support. Finally, I thank my respondents for their time and readiness to assist.

DEDICATION

I dedicate this research to my son Kojo Botwe whose pregnancy and birth witnessed the course of this work.

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ABBREVIATIONS

UDHR	Universal Declaration of Human Rights
UNICEF	United Nations Children's Fund
EIA	Environmental Impact Assessment
ESP	Environmental Sanitation Policy
EPA	Environmental Protection Agency
GDP	Gross Domestic Product
LSM	Large-Scale Mining
MDF	Mineral Development Fund
Mincom	Minerals Commission
ASM	Artisanal and Small-Scale Mining
ERP	Economic Recovery Programme
FDI	Foreign Direct Investment
CSO	Civil Society Organization
MLNR	Ministry of Lands and Natural Resources
CHRAJ	Commission on Human Rights and Administrative Justice

ABSTRACT

This study examines Environmental rights issues in unregulated artisanal small scale mining and its impact on the communities in the Mpohor District. Mixed methods approach and descriptive survey design were employed in this study. Purposive and simple random procedures were used to select 117 participants. Structured questionnaires and semi-structured interview guide were the instruments used for data collection. SPSS was used to analyze the quantitative data while thematic analysis was used to analyze the qualitative data. Findings of this study were that unregulated mining activities polluted most of the water bodies within the Districts, led to the destruction of most farmlands and removed the vegetation containing important species supporting mans' survival. It also increased erosion and loss of viability for agricultural purposes, among other uses. Moreso, unregulated ASM denied residents the right to clean water, health, and arable land, displacing people from their natural residence and inflation occurring which negatively affect the wellbeing of the local population. Also, children engaged in mining depriving them of their education and spreading problems of psychological or behavioural nature such as alcoholism and prostitution. Furthermore, findings on the use of Human Right Based Approach in mitigating unregulated ASM included local people participation, stakeholder's accountability, sensitisation and awareness creation on human rights and environmental rights and alternative livelihood creation. It was recommended that government embark on education on the effects of unregulated ASM on their health, environment, livelihood and socio-economic impact on posterity. Also, government and responsible stakeholders should create protected areas designated for agricultural purpose alone in the mining communities to ensure the continuity of food crop production. Furthermore, Stringent measures should be enacted and enforced to prevent landowners to still leased lands out. Moreso, the government can develop and invest in legalizing unregulated ASM and enforcing laws and policies to reduce the environmental hazards in the communities.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

The environment is vital to the existence of humankind because the necessities of life, such as water, air and food, are obtained from it (Satapattu, 2002; Moorthy, 2009). The Ministry of Local Government and Rural Development [MLGRD] (2010) believe that the environment is a part of humankind. According to Hayward (2005) man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and wellbeing, and he bears a solemn responsibility to protect and improve the environment for present and future generations.

The human-environment interaction, which, according to Ostergren and Le Bosse (2011), is one of the essential facts of life, has so many implications. The environment offers infinite possibilities, of which humans make important choices based on cultural and technological development. Unfortunately, some of these choices have been a driving force for environmental degradation and change. The exploration of natural resources is by no means a recent phenomenon. The transition from exploration to exploitation has hitherto resulted in a catastrophic impact on the environment and society in general. Martinez (2002) categorically stated that future generation would feel the impacts of poor environmental decisions irrespective of economic growth. Contribution of the mining sector to the economic development of Ghana has been widely acknowledged (Roe & Samuel, 2007). Ghana was once a leading producer of gold in the world, accounting for 36% of total world output between 1493 and 1600 (Tsikata, 1997). Gold accounts for 90% of the overall mining output in Ghana (Akabzaa, 2007). Current estimates show that the country is the

second-largest gold producer in Africa and the 9th largest producer in the world despite the 2% decrease in production from 92 tonnes in 2010 to 91 tonnes in 2011 (Aryee, 2012). The sector directly contributed 38.3% of Ghana's total corporate tax earnings, 27.6% of government revenue and 6% GDP in 2011 (Ghana Chamber of Mines, 2011).

Researchers and policymakers have long expressed concerns over the illicit activities of artisanal mining, yet efforts to tackle the somewhat irreversible impacts have inadvertently stalled (Hilson, 2001). It is mainly due to the multifaceted nature of small-scale mining. On the one hand, the environmental, social and economic cost cannot be underestimated whiles on the other hand, systemic disparities in development evident in rural and urban regions to some extent justify such activities (Hilson & Murck, 2000).

The adverse impact of mining, particularly artisanal mining euphemistically called Galamsey on sustainable development, has been well documented. A universal definition of ASM is not established yet (Buxton, 2013). The criteria for defining small scale mining differ from country to country. In Ghana small-scale mining refers to operations of individual Ghanaians or organized groups of Ghanaians (4-8 individuals), or a group often of more individuals, entirely financed by Ghanaian resources at a specific limit, and carried out on a full-time basis using simple equipment and tools (Fatawu & Allan, 2014). It also refers to prospecting and mining in an area designated, and which uses specialized technologies and methods not involving substantial expenditure" (Bugnosen, 2005). The "actors" in the artisanal mining sector at the local level constitute residents in the mining communities, migrants, nomadic peoples, seasonal subsistence farmers, and retrenched large-scale

mine workers. The power dynamics in the ASM encompasses sponsors, gold buyers and landowners with collaborations with traditional local authorities and more recently. The artisanal mining sector has non-compliance to environmental regulations, low level of productivity due to inadequate skills and qualifications of miners evident at all level of the operation culminating in low income and salaries (Buxton, 2013, Human Rights Watch, 2015). The application of rudimentary tools is highly prevalent in the artisanal mining sector (Buxton, 2013).

Recent research by the Forestry Research Institute of Ghana and Council for Scientific and Industrial Research (CSIR- FORIG, 2017) revealed that unregulated mining impact on the environment, water bodies and agriculture. Consequently, stakeholders have been called upon to address this menace. Ghana's mining sector comes in two main ways; large scale or corporate mining and small scale mining. The small-scale mining, by law, is the preserve of the indigenous people who primarily do surface mining with pickaxe, hoes, and pans. However, a phenomenon of unregulated mining as part of small scale mining has developed in the wake of a growing unemployed youthful population.

Galamsey is a term typically used to describe ASM mining activities in Ghana. The term galamsey was from the phrase "gather them and sell (Boadi, Nsor, Antobre, & Acquah, 2016; Abdulai, 2017). According to a report by a South African Human Rights Commission (SAHRC), experts and researchers working on ASM have divergent views on term illegal and informal mining. However, there is no formalized or agreed on distinction on informal or illegal. Thus, be it illegal or informal has similar characteristics to artisanal and small scale mining in other parts of the world (SAHRC, 2013). Consequently, this study uses the term unregulated ASM as

synonymous and interchangeable with informal or illegal or any ASM operating without a permit and outside the regulatory framework (Bansah, Dumakor-Dupey, Stemn, &Galecki, 2018).

In Colombia, 3,600-6,000 mines operate without a permit (Verite, 2016). Though the numerical strength and areas of operation of unregulated mining activities remain mostly unknown, Osei-Bagyina (2012) estimate places the figure at approximately 100,000 to 200,000. Likewise, Abdulai (2017) argues that an estimated 85 per cent of small scale miners operate without a license.

A research conducted by an international NGO Verité (2016) reveals that unregulated mines produce 87 percent of Colombia's Gold. According to the same research, there is a similar situation in Peru, where unregulated gold mining is estimated to generate USD 3 billion annually. Similarly, Abdulai (2017) asserts that artisanal and small scale mining (ASM) account for 60 per cent of Ghana's total labour force, providing employment directly or indirectly to over one million people. Consequently, in 2013 gold export from artisanal and small scale mining operations accounted for 34 per cent of Ghana's total gold export, which was equivalent to the total contribution of the three largest multinational companies in the country.

Even though unregulated mining activities serves as a source of livelihood (Lahiri-Dutt, Alexander, &Insouvanh, 2014), it is, however, a threat to the environment. Agbesi (2017) argues that the principal environmental problems emerging from gold mining are mercury pollution from gold processing and land degradation. Thus, the alluvial mining techniques employed by the unregulated miners pollute rivers, streams and lakes (Twerefou, Tutu, Owusu-Afriyie, &Adjei-Mantey, 2015). When humans consume traces of mercury or inhale gaseous mercury, it endangers the central

nervous system (Agbesi, 2017). This assertion is confirmed by Abdulai, (2017) that, the Ghana Water Company warned that the spate of water pollution by unregulated ASM operators is approaching alarming levels and that the country risks importing water for consumption by 2020. This claim is reiterated by Boadi et al. (2016) that, most of the regions, large tracts of forests have been invaded and degraded by both mining companies and ASM operators. For instance, about 4.4%, representing 2.5 km2, of the total area of the Offinso Shelterbelt Forest Reserve in the Ashanti region have been degraded. Also, the issue of the right to life comes to play as many unregulated miners die in their dugout pit as a result of walls collapsing and falling on them (Sarpong, 2010).

To curb this unregulated mining menace, the Ministry of Lands and Natural Resources which is mandated to ensure the sustainable utilization of the country's resources has over the years instituted several measures. In 2012, a ministerial Taskforce was formed by the government to fight the menace (MLNR Annual Performance Report, 2014). Then in 2015, Mining committees were instituted at the various districts to monitor mining activities in their jurisdictions. Also, in 2016, the mineral and mining Act, 703 (Act 2006) was amended to give the Police and the Task Force and their collaborators the legal authority and momentum required to seize the proceeds and equipment (excavators) used for unregulated mining (Sarpong, 2016). The recent effort by the government of Ghana to end unregulated mining in the country has formed a joint task force named Operation Vanguard.

However, unregulated mining has persisted over the years regardless of MLNR's effort to curb it. Yet such approaches have yielded little desired benefits in terms of improving the standard of living of residents in mining communities. It appears the

fight against unregulated mining activities has not incorporated a more sustainable approach (Lahiri-Dutt et al., 2014; Poku, 2016; Boamah, 2013).

1.1 Statement of Problem

The right to a quality environment is well established in international human right laws and sustainable development goals. Ghana is committed to the protection of a quality environment, as evident in the establishment of the Environmental Protection Agency (EPA). The Ghana EPA 1994 explains the environment as all, or any of the following media; the air, water and land. And the medium of air includes the air in buildings and the air in other natural or man-made structures above or below the ground. Dartey (2011) refers to the environment as both the natural, physical surroundings and the social conditions that impact upon the physical, mental and moral development of humankind. It is reasonable to assert that the enjoyment of fundamental human rights will not be complete without proper adherence to environmental rights. The concept of human rights includes civil and political rights or public liberties, economic, social, and cultural needs, particularly concerning development, the environment and self-determination (Jansuz, 2002). It is the State's responsibility to protect and promote human rights issues among its citizens (UDHR, 1948; Constitution of Ghana, 1992). The State also has to create conditions for peaceful co-existence which enable human rights to be enjoyed by every individual (Constitution of Ghana, 1992).

The new Environmental Sanitation Policy (ESP 2010) was approved by cabinet on 31st of March, 2010 and launched on the 30th of November, 2010. The overall goal of the ESP 2010 is to develop a clear and nationally accepted vision of environmental sanitation, as an essential social service and a major determinant for improving health

and quality of life in Ghana (Environmental Sanitation Policy, 2010). The policy is a necessary tool required to help shape all efforts in dealing with the overwhelming challenges of realizing environmental right in Ghana.

It appears realizing environmental rights in unregulated ASM communities in Ghana is close to dreadful. A report on the future of mining in Ghana by the Minerals Commission (2015), stipulates environmental issues perpetuated by unregulated ASM operators. Notable among them is the contamination and destruction of water bodies, the dreadful conditions of the environment and arable farmland which is a distress to the rights of citizens in the communities. Similarly, Bansah et al., (2018), disclosed the impact of unregulated ASM activities in south-western of Ghana in their study as a high rate of water pollution and land degradation. The report further identified neglect of mined pits, lack of reclamation and sedimentation of rivers as the crust of the environmental rights concerns. These environmental issues have rendered arable lands unviable for farming and increased the cost of water treatment in the municipality. Besides, some researchers have reiterated heavy metal contamination, unselective vegetation removal and damage of farmlands as the impact of unregulated ASM operations in mining communities (Affum et al., 2016; Boadi et al. &Paruchuri et al., 2010).

Consequently, these environmental apprehensions are assumed to aggravate the socio-economic state of residence in the mining communities. For instance, deserted excavated pits of these miners turn into breeding grounds for malaria-transmitting mosquitoes and pose a serious health threat (Boardi et al., 2016). From a human rights perspective, the social, health, and environmental impact of unregulated ASM activities, have severe consequences for the affected communities. Also, ASM miners

have their share, particularly for the right to life and the right to security (SAHRC, 2015). Sarpong (2015), on the right to life, attested to the fact that many illegal miners have died in their dugout pit as a result of walls collapsing and falling on them. No wonder Hirons (2014) portrayed unregulated ASM miners as opportunistic criminals looking to get-rich-quick and calls it a threat and menace, mainly as a result of the environmental degradation associated with its activities.

Yet, unregulated ASM has continued to flourish because it serves the interest of a wide range of actors, including Chiefs, the District assemblies, some M.P.s, ministers and financial sponsors of illegal miners (Abdulai, 2017; Hirons, 2014). Consequently, the government is committed to ending this menace. Despite the efforts of the government to effectively halt the activities of these unregulated miners, their operations persist (MLNR Annual Performance Report, 2014; Abdulai, 2017). Until mining communities and stakeholders participate in fighting unregulated ASM, the menace such as damage to our environment and right to safe water and safe environment would continue to hinder Ghana's development (Andrews, 2015). Therefore, this study sought to find a sustainable way to curb environmental rights issue of unregulated mining activities and its impact on the communities in Mpohor District.

1.2 Purpose of the Study

The study sought to examine environmental rights issues in unregulated ASM mining and its impact on mining communities in the Mpohor District of the Western Region of Ghana.

1.3 Objectives of the Study

The specific objectives were to:

1. Determine environmental rights issues in unregulated small scale mining in communities in the Mpohor District of the Western Region of Ghana.
2. Assess the impacts of environmental rights issues in unregulated ASM in communities in the Mpohor District of the Western Region of Ghana.
3. Examine ways to mitigate the environmental rights issues in unregulated ASM in communities using HRBA in the Mpohor District of the Western Region of Ghana.

1.4 Research Questions

The following questions guided the study:

1. What are the environmental rights issues in unregulated small scale mining activities in mining communities in the Mpohor District of the Western Region of Ghana?
2. What are the impacts of environmental rights issues in unregulated ASM in mining communities in the Mpohor District of the Western Region of Ghana?
3. How can the environmental rights issues in unregulated ASM be mitigated in mining communities using HRBA in the Mpohor District of the Western Region of Ghana?

1.5 Significance of the study

The study is significant in several dimensions:

The findings of this study would first and foremost bring to light the diverse environmental rights issues in unregulated small scale mining and its impact on the

mining communities. These findings could provide a detailed scholarly material on environmental rights issues in unregulated mining activities and sustainable ways to curb the menace.

Moreover, the findings would offer useful information to the Ministry of Lands and Natural resources, policymakers and various stakeholders such as the Minerals Commission, Environmental Protection Agency, Ministry of Local Government and Rural Development, National House of Chiefs and human rights groups. Finally, the findings of this study would likewise pave the way for other interested educational researchers to replicate the problems on the ground in other parts of the country.

1.6 Delimitation of the study

The study was focused on environmental rights issues in unregulated small scale mining and its impact on the Mpohor, Banso and Community 9 communities. It was further delimited to the Mpohor District of the Western Region of Ghana.

1.7 Definition of terms

Galamsey: The term galamsey was from the phrase gather them and sell. It also refers to illegal mining practised without a permit or mining in unapproved areas like the forest reserves, game reserves or near water resources even with a secured permit (World Bank Group Department, 2002)

HRBA: means incorporating the norms, standards and principles of international human rights law into the plans, policies and processes of development. It includes dependence on national laws, public and customary norms (Gready, 2008).

Human Rights: The concept of human rights includes civil and political rights or public liberties, economic, social, and cultural needs, particularly concerning

development, the environment and self-determination (Jansuz, 2002). It is the state's responsibility to respect, protect and promote human rights issues among its citizens (UDHR, 1948; Constitution of Ghana, 1992).

Environmental rights: These are rights that safeguard the natural resources of the earth including the air, water, land, flora and fauna and uniquely representative samples of the natural ecosystem for the benefit of present and future generations through careful planning or management (Hayward 2005).

Unregulated ASM Refers to or is synonymous and interchangeable with informal or illegal or any ASM operating without a permit and outside the regulatory framework (Bansah et al., 2018).

1.8 Organization of the Study

The study has been grouped under five (5) Chapters. Chapter one gave a brief background to the study. Chapter one again gave insight into the purpose of the current study, objectives of the study, research questions, and significance of the study and the delimitation of the study.

Chapter Two reviewed some relevant literature concerning the research work. Chapter Three dealt with the methodology employed in the current work. Chapter Four looked at the method employed in analyzing the data obtained in the study and also looked at the results of the study. Chapter five presented a summary of the findings obtained in the study, the conclusion of the study and suggested some recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A principal issue among Rio Declaration on Environment and Development 1992 (U.N., 1999) was to view the needs of humans at the centre of concerns for sustainable development and to ensure a healthy and productive life which is in harmony with nature. However, activities of illegal mining could challenge the realization of such a vision since illegal mining could negatively affect or enhance the development of local communities and their livelihoods. This chapter focuses on the review of the relevant literature concerning how unregulated ASM activities impact environmental rights in several dimensions. Areas covered include: the concept Human Rights; the concept of Environmental Right; Mining; Types of Mining; Ownership of Mining Business in Ghana; Unregulated Mining; Causes of unregulated gold mining Ghana; Implications of Unregulated ASM activities; Approaches used to check Unregulated ASM; Livelihoods Strategies in Mining Communities; Sustainability of Alternative Livelihoods Strategy; Unregulated Mining and Human Rights Violations.

2.1.0 Theoretical Perspective of the Study

2.2.1 Human Rights-Based Approach (PANEL principles)

The work is grounded on the Human Rights-Based Approach (HRBA). The first U.N. development agency to champion the HRBA in its programming is UNICEF (Jonsson, 2003). The 1980s to the 1990s witnessed a move towards a more human-focused developmental process by UNICEF. Further, they stressed on the need to empower the vulnerable in the process of development instead of sidelining of the

poor (Jonsson, 2003). However, in 1997, the then U.N. Secretary-General Kofi Annan launched a programme for reforms and called for integrating human right into all programs and activities of the U.N. systems (Jonsson, 2003). Subsequently, a host of developmental agencies started adopting HRBA in their activities. However, in 2003 a common understanding on an HRBA was established in U.N. which allowed U.N. bodies, governments and NGOs to apply it to their developmental project. The guide stipulates that the realization of human right should be at the core of all Programmes of developmental cooperation, policies and technical assistance as stated in the UDHR and other international human rights instruments. The guide further instructed that all developmental cooperation and programming in all areas and all stages of the programming process should be guided by human rights and values derived from the UDHR and other human rights instruments. Finally, all programme of development cooperation should build capacities of duty-bearers to meet their obligation and right- holders to claim their rights (Albero, 2015).

A human rights-based approach is a conceptual framework based on international human rights standards to uphold and shield human rights in a developmental project (Brysk, 2009). Analytically, a human rights-based approach closes up the space between right holders and duty bearers through enhancing the understanding of their associations. Thus, human rights based approach calls for the integration of international human rights standards to reinforce people's human rights in the very core of policies and developmental agendas. Huasen and Launiala (2015) further simplify HRBA as incorporating the norms, standards and principles of international human rights law into the plans, policies and processes of development. Gready (2008) widens the scope of HRBA framework by including its dependence on

national laws, public and customary norms. HRBA implies using human rights as the foundation for formulating the aims for development cooperation.

Over the years, various approaches to developmental interventions were adopted. The initial approach embraced by developmental stakeholders was the charity approach, then to needs and now HRBA. All the approaches had their peculiar characteristics; the charity approach stressed the moral responsibility of the rich to the poor. The need approach highlighted on needs as a lawful entitlement. HRBA is more about identifying individual and group rights as lawful and moral claims to duty- bearers (Alkstal, 2017). No wonder most states commitments to human rights are made more visible in applying HRBA in all stages of developmental intervention. Finland, for example, considers human rights awareness as a developmental outcome and hence incorporate human rights principles to their programme writing, preparation, implementation, monitoring and assessment of their developmental cooperation (Government of Finland, 2015). Also, HRBA authorizes people to know and claim their rights by forming strong accountability so people can seek remedies when their rights are compromised (Lauren, 2011). It also analyzes inequalities, redress discriminatory practices, abuses and unjust distributions of power that impede development progress (Brysk, 2009).

Consequently, HRBA is an essential prerequisite for attaining good governance and reinforces the social contract between citizens and their governments (OHCHR, 2013). That is why the government of Ghana and related agencies are relentless in curbing unregulated gold mining activities with their associate human right issues. In most cases, people's right to clean water, health and arable land through the activities of these miners is violated (CHRAJ, 2006; Kumah, 2006). Therefore until HRBA is

used to fight this cancer, the unregulated mining menace would continue to hinder Ghana's development (Andrews, 2015).

Furthermore, HRBA is essential for sustainable development. Accordingly, all states which have ratified human rights treaties have the responsibility to implement their development programs on human rights principles. The bottom-up order of HRBA in the course of change, strengthen policymakers to design sustainable development process on the premise of human rights and enhance human rights conditions to be supervised, assessed and safeguarded for an extended time.

Noticeably, data on Human Rights-Based Approach varies depending on the nature of the organization concerned and their area of operation. Universal principles are summarized with the acronym PANEL – Participation, Accountability, Non-Discrimination, Empowerment and Linkage to Human Rights norms (Gready &Vandenhole, 2014). Similarly, Kayser and Osterhaus use PLANET as they add transparency to the framework.

Participation: deals more with the mindset, where developmental projects cooperatively involve both duty- bearers and right holders. Such a process is not enforced, but the inhabitant inputs are recognized and the developmental body serving as implementers of the process. Therefore the residents will have a sense of ownership as they affect change in their area. Hence, the supervision, continuousness and solution to the problem recognized will be the responsibility of the community members.

Direct participation calls for the involvement of right- holder from the situational analysis and problem identification stage, to the planning and execution as well as the supervision and examination of the developmental project. The entire process calls for

the right holders being able to express the concerns and given listening ears without discrimination. Conversely, there is difficulty in reaching a sound level of participation. For instance, differences in priorities of both developmental bodies and communities and power structures and discrimination can influence participation negatively.

Accountability: demands are calling on duty- bearers to account for their obligation. As HRBA empowers the right – holder to claim their rights, it also makes duty provisions- bearers to accomplish their responsibilities (Munyoa, 2013). Discussion and collaboration among duty- bearers, right holders and other responsible actors augment accountability. No wonder Finland term accountability as the heart of HRBA (Government of Finland, 2015).

Non- discrimination and equality: involve accepting that all human beings are equal and are entitled to their human rights without discrimination including sex, ethnicity, age, language, religion disability among others (UDHR, 1948). It's on this premise that the planning and operation of HRBA require exceptional attention to people in a vulnerable position in the project so that the plan does not enhance discrimination but guarantee all individuals involved equal access to the process and benefit of the project.

Empowerment: is the manner of building the capability and self-reliance of residents to assist them in claiming their entitlements as well as becoming public actors and taking charge of their lives. Individuals empowered to be in charge of their lives by furnishing them with awareness, expertise, an attitude that widens their alternatives and self-reliance (Munyoa, 2013).

Empowerment is an essential principle in attaining development by right- holders themselves. Thus, residences feel a sense of ownership and actively participate in a project that will enhance change; because they have access to choices, assets, and abilities to transform their lives and lead their developments.

Linkage to Human Right: the principles of HRBA approach are geared toward the realization of human right. The HRBA as an approach is confidently grounded on international human rights being incorporated into the development. Countries with ratified human right treaties are indulged to convert them into state laws so that human right can be legitimately mandatory and the lawful duty- bearers are held responsible for accomplishing them (Albero, 2015). Also, as HRBA guarantees to safeguard right – holders to claim their rights, organizations dedicated to this approach ensures that to realize one human right no other right be violated in the process.

2.3. The Concept of Human Rights

Historically, Thomas Paine, a French first used the term 'Human Rights' when translating the French Declaration of Rights of Man and the Citizen from French to English, but unfortunately, he was detained. From then, the concept has been with several interpretations across law and legal disciplines as well as areas of research with legal knowledge-focused. The concept of human rights covers a wide range of meanings; they are the key to an understanding of the law, the legal system, and legal culture. It is, therefore, an indicator of the society's status and legal consciousness of its citizens. Human rights cover a total area of human existence (Zerkina, Kostina & Pesina, 2015).

Human rights are essential in every society, and Human Rights awareness creation is a universal need and individuals, groups, institutions, governments and international bodies have appealed to the universal need for Human rights (Cranston, 1973). Human rights are the outcome of a philosophical debate that has for over two thousand years within the European societies and their colonial descendants. Shiman (1973) posits that the philosophy of human rights addresses questions about the existence, content, nature, universality, justification, and legal status of human rights. The firm claims made on behalf of human rights frequently provoke sceptical doubts and countering philosophical defences. The core of these arguments focused on an exploration for ethics or moral standards of political organization and behaviour that is independent of contemporary society. Thus at any given time, people are quite sceptical about what a particular society or ruling elite feels is right or decent. Such apprehension has led to a quest for lasting moral obligations that bind societies and their rulers over time and across places.

The idea that rights are conferred on people by their humanness is quite a new phenomenon (Butler, 2012). Human rights trace its roots to earlier tradition and practices of many cultures; World War II was the catalyst which propelled human rights onto the global stage and into the global conscience. Before the advent of Human rights unto the global discourse, people acquired rights and responsibilities through their affiliation in a group; a family, religion, nation, class, or society. The five of the ancient written sources which addressed the question of people's duties, rights, and responsibilities included the Bible, Hindu Vedas, the Babylonian Code of Hammurabi, the Quran, and the Analects of Confucius (Crawford, 2010).

The written pioneers of today's human rights documents which declared individual rights are documents such as the Magna Carta (1215), the English Bill of Rights (1689), the French Declaration on peoples' rights and Citizen (1789), and the U.S. Constitution and Bill of Rights (1791) (Cranston, 1973). Yet, many of these documents, when initially translated into policy, prohibited women, blacks, and members of specific social, economic, religious, and political groups (Ajulo, 1993).

Modern human rights laws and the creation of the United Nations (U.N.) in 1945 have historical antecedents. Struggles in the 19th century to the outlaw the slave trade and to limit the tremors of war are prime examples (Almond & Harry, 1993). In 1919, countries came together to establish the International Labour Organization (ILO) to supervise treaties protecting employees concerning their rights, including their safety and health. The League of Nations elevated concern over the protection of certain minority groups at the end of World War I (Butler, 2010). Nonetheless, this organization for international peace, created by the victorious European allies, never achieved its goals and died with the start of the Second World War in 1939.

The notion of human rights emerged strongly after World War II with the formation of the U.N. (Cranston, 1973). The main objective of the U.N. is to strengthen international peace and preventing conflict, with its first document; the Universal Declaration of Human Rights (UDHR, 1948). The UDHR (1948) comprises over two dozen specific human rights outlined for countries to respect, promote and protect; which are security rights that protect people against crimes such as murder, massacre, torture, and rape. And due process rights that protect against abuses of the legal system such as imprisonment without trial, secret trials, and excessive punishments. The rest are liberty rights that protect freedoms in areas such as belief, expression,

association, assembly, and movement. Political right protect the liberty to participate in politics through actions such as communicating, assembling, protesting, voting, and serving in public office and finally, equality rights that guarantee equal citizenship, equality before the law, and non-discrimination. The Universal Declaration does not include group rights, but subsequent treaties do. Thus group rights include protections of ethnic groups against genocide and the ownership by countries of their national territories and resources (Kymlicka 1989; Henrard 2000; Anaya 2004; Baker 2004; Nickel 2006).

The UDHR has placed human rights in the global governance. Its principles have been incorporated into the constitutions of most of the more than 193 nations now in the U.N. Although a declaration is not a legally binding document, the Universal Declaration has attained the status of customary international law (Alston, 2005).

Rights are something people demands or desires for their self-development. Rights are those basic standards without which people cannot live in dignity. Therefore, Human Rights could equate as those basic standards without which people cannot live in dignity. They include the rights and freedoms, to which all humans are entitled, often held to include the right to life and liberty, freedom of thought and expression, and equality before the law (Rahaman, 2008; Zerkina, Kostina,&sina, 2015). To violate someone's human right is to treat that person as though she or he were not a human being. These are a few natural rights which cannot be denied, but at the same time not guaranteed by Statutory Law. The state should promote and protect human rights (Rahaman, 2008).

2.3.1 Tenets of Human Rights

Human Rights have unique characteristics which make them different from other rights. These are natural/inherent, not exchangeable, universality, equality and feasibility. It is natural/inherent in the sense that none acquires it by any unique quality of reputation. It is not the charity of any person or any social system. Every man is by born entitled to these rights. Human rights are not exchangeable in that they cannot be exchanged or transferred. It is excessive to all. It could neither be given away nor could be stolen or taken away by snatching (Rokeya, 1997).

Human rights being a universal, stand out as the underlying value of human rights and that everyone is entitled to all the rights and freedoms outlined in the UDHR. While equality refers to equal enjoyment of opportunities and resources to all, feasibility also implies the crucial characteristics of Human Rights are its feasibility or effectiveness. That is, Human Rights should never be viewed as a theoretical or abstract concept. It is shaped by the social values, norms, culture and institutions (Rokeya, 1997).

Human Rights differ from Fundamental Rights, although they are strictly related concepts. Specifically, Human Rights are those basic standards without which people cannot live in dignity. They are inherent to each individual. Meanwhile, Fundamental Rights are those rights or Human Rights, which are guaranteed by the constitution. All Fundamental Rights are Human Rights, but all Human Rights are not fundamental rights (Kostina & Pesina, 2015). Human Rights are concerned with every human being of the world, but fundamental rights are related between one state and their citizens (Kostina & Pesina, 2015).

According to the 1948 Universal Declaration of Human Rights, the number of Human Rights is 25. They make up 19 Civil and Political Rights and six Economic, Social and Cultural Rights. There are also another two kinds of Human Rights Known as Solidarity rights. One right is to Self-determination, and another right is to Self-development. So the total numbers of Human Rights are twenty-seven.

On the other hand, there are no endless numbers of fundamental rights. It varies from country to country. It depends on the political and economic condition of any state (Glendon, 2004; Kostina & Pesina, 2015).

Human rights are not just theoretical. According to the U.S. Human Rights Fund (2010), human rights are standards to which governments are to be held accountable. From this point, the Advocates for Human Rights (2011) developed five basic tenets that should guide what constitute human rights as they apply to all people. They are universal, inalienable, interconnectedness, indivisible and non-discriminatory. They are Universal in that they belong to all people equally regardless of status. All people are born free and equal in dignity and rights. Also, they should be inalienable in that they may not be taken away or transferred. People still have human rights even when their governments violate those rights (Advocates for Human Rights, 2011). The interconnectedness implies that the fulfilment or violation of one right affects the fulfilment of all other rights. While indivisible also means that no right can be treated in isolation. No one right is more critical to another other. Non-discriminatory means that human rights should be respected without distinction, exclusion, restriction, or preference (Advocates for Human Rights, 2011).

2.4 The Concept of Environment Right

According to Hayward (2005) man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and wellbeing, and he bears a solemn responsibility to protect and improve the environment for present and future generations. The author also maintains that the natural resources of the earth including the air, water, land, flora and fauna and uniquely representative samples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate. Hancock, (2003) is of the view that is recognizing the right to a healthy environment include the enactment and enforcement of more robust and more comprehensive environmental laws. A level playing field vis-a-vis other rights more generous government and corporate accountability protection of vulnerable groups who currently shoulder a disproportionate burden of environmental harms and increased citizen participation in decisions and actions to protect the environment.

Opponents argue that any prospective advantages outweighed by problems such as the low likelihood of effectiveness redundancy with other rights negative implications for democracy, the excessive focus on individual's adverse effects on other rights anthropocentrism and the creation of false hopes. There is an absence of discussion on realizing the right to a healthy environment and these anticipated effects; either positive or negative. The debate has taken place in the absence of any empirical evidence about the actual effects of constitutionalizing environmental protection (Ashgate, Hunter, Salzman, &Raelke, 2002). Hayward (2005), in one of the leading texts on this subject, discounts the possibility of conducting such an assessment because of methodological difficulties. Shelton, another leading scholar in the field of environmental rights, writes that constitutional environmental rights probably halted

some environmental deterioration in some countries, although empirical studies are lacking.

2.5 Mining

Abaidoo (2016) described mining as an operation where the earth is dug out to extract natural minerals. Mining activities go on in almost every part of the world, and it is the world's second-oldest industry and one of the largest industries in the world (Abaidoo, 2016). It is a crucial component of the world's economic development. The trade of mineral commodities is vital for international trade (Amponsah-Tawiah & Dartey-Baah, 2011).

Humankind has been dependent on mining from the days of old to the present. The abundance of minerals serves as an avenue for creating wealth (Anon, 2015). Minerals can be sold on the open market, making the countries that own these minerals obtain valuable currency from countries that do not (Anon, 2015). Mining begins with geological investigations that help to find the deposit and then a performance of economic analyses that would provide its financial and economic feasibility or otherwise (Anon, 2015). Following the extraction of the mineral, the material is cleaned or concentrated. The minerals produced are refined further to provide consumer products. The end step is converting a mineral material into a useful product for marketing (Anon, 2015).

2.5.1 Mining in Ghana

The long-existing role of mining in the economic development of the country is impressive and well established. Ghana's colonial name of "Gold Coast" reflects the mining sector and particularly, the gold trade. The country has a known past of gold mining, with almost 80 million ounces of gold produced when the first Gold mining

activity was documented (Amponsah-Tawiah &Dartey-Baah, 2011). The country can boast of 36% of the total world gold output (8,153,426 ounces between 1493 and 1600) and is the second-largest gold producer in Africa, the third-largest African producer of aluminium and manganese ore and produces bauxite and diamonds in significant quantities (Tsikata 1997; Amponsah-Tawiah & Dartey-Baah, 2011).

Illegal mining in Ghana has been debated upon and is seen in general as highly negative, with the illegal miners irresponsibly using mercury in their gold extraction with no concern for the communities' health, wellbeing and the environment. The sentiments are often that the small-scale miners destroy the investment potential that the country can generate from the large-scale mining companies (Bach, 2014; Agbesi, 2017). With limited sources of income and the inability to officially register for any mining blocks due to bureaucratic delays and no access to mining education concerning how to mine more efficiently and with environmentally sound procedures, these miners highly marginalized group (Bach, 2014; Bansah et al., 2018). It is because governmental policy processes are with insufficient stakeholder participation. However, in the academic sphere, there is the notion that what is needed to deal with the galamsey sector is an integrated approach which actively involves the community (Bach, 2014). Since the early 2000s, about 50,000 Chinese gold miners have migrated to Ghana to engage in small-scale mining (locally known as galamsey). Galamsey is defined as the exploitation of mineral deposits through the use of necessary equipment and involving low levels of production with minimal capital investment and by law reserved for only Ghanaians (Botchwey, Crawford, Loubere, & Lu, 2008). The influx of Chinese miners to Ghana has mainly been driven by high gold prices, increasing cultural cooperation between Ghana and China, and the largely informal nature of small-scale mining in Ghana, which enables easy entry by locals and foreigners into

the business (Botchwey *et al.,* 2008). Before the arrival and involvement of Chinese miners in this industry in Ghana; the sector was characterized by informal and illegal activities. Where Ghanaians in mining communities usually extracted gold without a license, using basic methods (Afriyie, Ganle, & Adomako, 2016). In collaboration with local actors, however, the Chinese miners have imported more sophisticated machines that have gradually replaced the rudimentary methods and implements used by their Ghanaian counterparts. Given the prohibition by law on foreigners' engagement in small-scale mining in Ghana, the continued engagement by Chinese in the industry has attracted considerable interest from scholars and analysts, whose debates are according to the following four main arguments. The first and most common debate asserts that formal state institutions are weak or under-developed, and thus are unable to regulate the mining activities (Afriyi *et al.,* 2016). Secondly, some scholars have argued that there is a lack of political will to fight illegal Chinese businesses, ostensibly because politicians and high ranked government officials also benefit from such illicit activities (Aidoo, 2016).

Thirdly, state and local actors (such as chiefs and landowners) with varying agencies connive with the Chinese miners, by sheltering the latter from statutory regulatory authorities in Ghana (Botchwey *et al.,* 2008). Ghanaians thus provide crucial local information such as how to navigate certain terrains and local laws. Consequently, the Chinese miners, with their modern technology, extract the minerals and share the proceeds with their local counterparts (Odoom, 2016). Fourthly, others blame the phenomenon of illegal small-scale mining on excessive bureaucratic processes involved in procuring a mining license in Ghana, which often encourage shortcuts among actors to circumvent legal procedures. While these arguments are significant in

explaining the rapid growth in the illicit small-scale mining business, the ongoing discussions have not captured all the dynamics of the subject matter.

For instance, there are also emerging arguments linking the rapid increase in artisanal and small-scale gold mining to acute lack of jobs and accompanying poverty nationwide. However, the existing literature fails to explore the interaction between formal institutions sufficiently (e.g., the Minerals Commission and Ministry of Land and Natural Resources) and informal institutions (e.g., the chieftaincy and customary land institutions), and how it affects mining activities. In contrast, it is not possible to tease out all the nuances in the scholarly debates of formal and informal institutions. The formal and informal institutions denote liberal/Western-style and African traditional governance systems (that have endured from pre-colonial to post-colonial periods), respectively. The literature reveals hybrid operations between the two institutions in contemporary times, while still indicating that formal and informal institutions mainly perform different core functions (Cheeseman, 2018).

They were drawing on qualitative data from existing literature, legislation, and print and electronic media discourses regarding the proliferation of illicit small-scale mining in Ghana. These articles critically examine the interaction between formal and informal institutions in the small-scale mining sector, assessing how they have contributed to the proliferation of Chinese involvement in illicit mining in Ghana. The same studies demonstrate that state and customary institutional relations are disjointed as far as regulating the mining sector is concerned based on an institutional analytical framework. This disconnect aids the agency of networked and individual actors both locals and Chinese migrants to perpetuate illegal small-scale mining, which has

created enormous environmental, political, and economic implications for the mining communities and Ghana as a whole.

This claim also goes contrary to the predominant views of distinct formal and informal spaces, and the weaknesses of the former being the cause of illicit mining activities (Aidoo, 2016), but somewhat supports recent scholarship on hybridity (Boege, 2018). With emphasis on the constitution of Ghana and its accompanying acts on one hand and the position of traditional/informal institutions (principally the chieftaincy) and other stakeholders on the other hand, with how their positions and interactions affect illegal mining. Given this, attention is drawn on customary land, which comprises stool, family and individually owned lands, because both large- and small-scale mining in Ghana primarily take place on customarily owned land. The existing scholarship underscores the fact that illegal mining has a long history in Ghana, predating Chinese participation in the business. This argument mainly attempts to point out how an ill-coordinated institutional mandate further breeds the activity, which now involves foreigners. In the subsequent sections, we first provide an overview of China's pursuit of resources in Africa through the growing relationship between China and African countries, and how this is driving the influx of Chinese miners to Ghana. The increasing involvement of Chinese miners in the small-scale mining sector in Ghana is an expression of a deep-rooted problem shrouded in institutional disjuncture.Sino–Africa relations date back to the 1960s during Africa's struggle for independence and self-rule. Ghana established formal relations with China in 1960 during the tenure of Kwame Nkrumah, Ghana's first president (Aidoo, 2016). The independence of African countries in the 1960s coincided with the Cold War epoch (Debrah, Yeboah, & Boafo, 2015).

During the Cold War, China's foreign policy was primarily centred on gaining ideological support from newly independent African States. As Nkrumah argued at Ghana's independence, the colonization of Africa accompanied by the institution of capitalism eradicated pre-colonial African socialism and egalitarianism, leading to an unequal distribution of resources, which stratified the African society into the rich and poor. The need to reintroduce socialism into Africa as a political and development ideology thus led to the establishment of political and economic relations with the socialist states of the East, especially China. Relations between China and African countries, however, were severely affected following post-independence political instabilities across Africa between the 1960s and 1980s, when some African leaders reprioritized relations with the West within the same period (Debrah *et al.,* 2015). However, since the dawn of the millennium, there has been a resurgence of relations between China and Africa. In particular, the rise of China as a global economic and political power and the search for resources to sustain its economic growth drove a revival of relations between China and African countries. China's intent has been to leverage and expands access to Africa's energy and mineral resources through soft and interest-free loans (Boege, 2018). As a result, the outflow of energy and mineral resources from Africa to China has increased significantly over the years. For instance, China imports about 30 per cent of oil, 80 per cent of cobalt, and 40 per cent of manganese from Africa.

China's insatiable demand for resources is due to its quest to sustain high economic growth and the growing consumption of its growing affluent class, estimated at 500 million by 2020. China leads the global demand for gold. For instance, of a total of 4345.1 tons of global demand for gold in 2018, China alone consumed 1151.43 tons, making it the world's largest consumer of gold for six consecutive years. China's gold

consumption rose by 5.73 per cent between 2017 and 2018, a growth rate which is driven by increasing demand for jewellery and gold bars, and by industries for other purposes. The increasing investment in gold by the rich in China is a result of fluctuations in the real estate, security, and capital markets. The Chinese government aims to continually accumulate gold as a cornerstone of its monetary policy, as well as encourage its citizens to own gold as a store of value. As a result, the increasing affluent class in China continues to have a voracious appetite for gold. Despite also being the largest producer of Gold in the World, China's local gold production falls short of domestic demand. For example, China's total production stood at 429.4 tons in 2017 and 404.1 tons in 2018, indicating a reduction in production by 5.87 per cent (Boege, 2018). Thus, while local demand for Gold in China increased by 5.73 per cent in 2018; local production fell by 5.87 per cent in the same period. To meet the high domestic demand for Gold, China imports significant quantities of gold from other countries. Thus, the high demand for gold and other mineral resources saw Chinas' engagement, for example, in South American and African countries' extractive industries, with thousands of Chinese gold miners migrating to Africa in search of gold. For instance, since 2005, over 50,000 Chinese gold miners have entered Ghana, most of them engaged in illegal small-scale gold mining in the country. Gold production is a necessary sector of Ghana's economy, accounting for 96.68 per cent of the total earnings from exported minerals in 2015. Currently, Ghana is the largest producer of Gold in Africa and is ranked eighth globally, producing 136.2 tons in 2016 (Afriyie *et al.,* 2016). Gold production in Ghana comprises both large-scale mining, primarily dominated by multinationals and small-scale mining, reserved by law for Ghanaians only.

The small-scale mining sector consists of 30 per cent registered and 70 per cent unregistered mining operations across the country (McQuilken, 2016). The small-scale mining sector directly employs about one million people. It supports the livelihoods of about 4.5 million people, as well as accounting for 35 per cent of total gold production in Ghana. In particular, illicit or unregistered small-scale mining in Ghana has expanded in the past decade as a result of increasing involvement of Chinese miners in the sector. Given the small-scale nature of their operations in the non-renewable natural resources sector in Ghana, the Chinese are unable to engage in large-scale mineral exploration and extraction in the same way as the large U.S. corporate bodies. Thus, Chinese organizations focus on providing services to other large mining entities in the extractive industry. Yet, these services are plagued by illegalities, as most companies also offer services to small-scale miners or end up working in this sector, contrary to the rules and regulations in Ghana (p.37). Consequently, there has been a correspondent increase in smuggling and illicit flow of Gold from Ghana and other African countries to China.

A recent report by Voice of America indicates that China is a significant destination for illicit Gold from Africa. The illegal gold trade costs African countries billions of dollars each year in terms of revenue loss. For example, gold, with an estimated value of $2.3 billion, left the shores of Ghana through the illicit gold trade in 2016 alone. The increasing involvement of Chinese miners in illicit mining and gold trade in Ghana has attracted public concern and varied debates among scholars and analysts. In contrast, some scholars have attributed illicit small-scale mining to many factors, including institutional weakness, corruption, and cumbersome bureaucratic processes of acquiring a mining license. This study further explores the subject matter, demonstrating that the drivers of illegal small-scale mining in Ghana are involved and

deeply-rooted in the legacy of colonial institutional ordering, which has since created a disjuncture between Western-style institutions and African-style institutions. To provide a background to this puzzle, we briefly examine the significant existing theoretical debates on institutions in Africa in the next section.

In May 2013, President John Dramani Mahama inaugurated a five-member Inter-Ministerial Task Force to clamp down on illegal small-scale mining. The ministries included the Ministry of Lands and Natural Resources, Ministry for the Interior, and Ministry of Defense. This task force was mandated to seize all the equipment the illegal miners use, arrest and prosecute both Ghanaians and non-Ghanaians engaged in illicit small-scale mining. And deport all non-Ghanaians engaged in the practice, and revoke licenses of Ghanaians who have sub-leased their concessions to non-Ghanaians (News Ghana, 2019). Despite such clear delineation of the mandate of the task force, the Ghanaian public was divided about the role of the group and its effectiveness in fighting illicit small-scale mining. While a section of the public lauded the president's initiative, others doubted the effectiveness of the idea, questioning why the government took so long to respond to the issue. Indeed, the lack of swift response from the state was quickly blamed on the weaknesses of state institutions. Some political analysts were also sceptical of the task force's ability to deliver on its mandate, as cracking down on Chinese miners may have political ramifications for the Ghana–China relations.

Despite these concerns, the task force carried out its activities as mandated. However, it was not without further public criticisms and accusations that the task force targeted only Chinese miners. It destroyed their property, a claim dismissed by the chairperson of the task force. In 2013, the task force dismantled hundreds of illegal mining sites and evicted thousands of Ghanaian and Chinese miners from sites. Over 4500 illegal

Chinese miners were arrested and deported in the same year. It caught the attention of the Chinese authorities, who sent a delegation to Ghana to discuss the issue with the Ghanaian government. In the middle of 2013, the then Chinese ambassador to Ghana, Gong Jianzhong, also made a courtesy call to the then Minister for Lands and Natural Resources, Alhaji Inusah Fuseini, who was the chairperson of the Inter-Ministerial Task Force. This call was to review the status of bilateral relations between Ghana and China. The ambassador proposed a new model for relations between the two countries in which the Minerals Commission could allow Chinese miners to work with licensed Ghanaian small-scale mining companies. This would enable the Chinese to transfer technical knowledge to their Ghanaian counterparts for the development of artisanal mining in Ghana (General News, 2019). Although the crackdown reduced the number of illegal Chinese miners, the task force could not wholly stop illegal mining involving foreigners (Chinese) and locals. This probably because the task force was only composed of actors from state institutions without the involvement of customary land actors such as chiefs, who directly engage with illegal miners through land transactions. The exclusion of the customary land actors in the fight against illegal small-scale mining suggests a disconnection between the state and traditional institutions in the small-scale mining sector. Following the crackdowns, illegal Chinese mining became concealed, as miners hid in remote mining communities where they were protected by chiefs and the local people to escape arrest by the task force. With this protection, the Chinese migrants have continued to engage in illegal small-scale mining despite the task force's clampdowns.

Perhaps overlooking a vital element of the root cause of illicit small-scale mining in Ghana which we argue is the disconnect between state and customary institutions the New Patriotic Party (NPP), which was in opposition in 2013, promised to stop the

menace when voted into power. The NPP somewhat saw its victory in the 2016 general elections as the people's mandate to act on illicit small-scale mining. Thus, the President, Nana Akuffo-Addo, launched "Operation Vanguard" in 2017 to stop illegal small-scale mining, first in the Ashanti, Eastern and Western Regions, and later in the Central Region. Operation Vanguard is a Joint Military Police Task Force that comprises 400 service members drawn from the military and police service. An inter-ministerial committee alongside the Minister of Defense, the Minister for the Interior, the Chief of Defense State, and the Inspector General of Police, supervise the task force. Again, customary land actors have been excluded from the composition of "Operation Vanguard" and the second phase of the crackdown. However, chiefs have been generally called upon to assist the task force in the fight against illegal small-scale mining. A six-month ban was placed on all forms of small-scale mining in the country, make the work of "Operation Vanguard" more accessible. The task force carried out its work, and by February 2018, about 1000 illegal miners, comprising both Chinese and Ghanaians, were arrested (Sowa, 2005, Bansah et, al., 2018). Besides, several pieces of mining equipment were seized, while hundreds of makeshift shelters belonging to the miners were also destroyed. Those arrested were either fined or jailed or deported in the case of foreign nationals.

It is worth noting here that this is not the first time that a militarized approach has been taken to stop illicit mining in Ghana. Military actions have always been a part of the strategies of the government to halt illegal mining activities. However, the military strategy, as well as other approaches, such as simplifying the licensing process and provision of alternative livelihood opportunities for illegal miners, has all failed to put an end to illegal mining operations. Governments historically have prescribed technocratic solutions. Thus, state institutions and actors, are used to stop illicit small-

scale mining without paying attention to the fact that the sector is controlled formally by the Ministry of Lands and Natural Resources and the Minerals Commission, and informally by the customary land institutions. Given the constitutional mandate that the two arenas must coordinate in natural resource governance, the continued institutional disconnect, as the preliminary evidence suggests, breeds conflict, tensions, and manoeuvring, further promoting illegality and uncertainty in the industry. Based on our findings and analysis, we propose the following policy recommendations to strengthen the connection between the so-called formal and informal institutions to perform their designated functions. First, an autonomous, vibrant, and robust civil society should participate in the design, formulation, and implementation of mining policy at all levels: national, regional, and local. The civil society must have the capacity to ensure transparency and monitoring and to put pressure on all stakeholders to play by the rules. It must work in tandem with other parasternal institutions to play an oversight role in regulating the mining industry. To prevent civil society from being just another added institutional arena, its key role must be to help deepen institutional development.

Often including working to strengthen coordination among the institutions involved in the mining industry, particularly between the Minerals Commission and the Ministry of Lands and Natural Resources, and the chieftaincies and customary land institutions. Second, the state must show guarded enthusiasm for Chinese engagement, in that China's recourse to an undemocratic approach to operating businesses in the country (and elsewhere, such as South America and other African countries) tends to stifle Ghana's institutional development. Chinese mining organizations and individuals have failed to adhere to the mining laws.

Here, negotiating directly with individuals, local elites, and chiefs without recourse to the established mining rules tends to weaken national, regional, and local institutions' resource governance coordination efforts that are essential in regulating mining activities (Sowa, 2005). Besides, chiefs and other customary representatives must also be regular actors in state institutions in charge of lands and natural resources. Customary actors should not only be informed or consulted but must be integral to all mining transactions. The preceding discussion indicates that traditional institutions and actors are only informed of the licensing process after endorsement by the Ministry of Lands and Natural Resources and the Minerals Commission. Thus, pushes customary and local actors to also exercise their agency by engaging in separate negotiations, e.g., between chiefs and miners at the local level, which is unlawful. Moreover, as chiefs and other customary landowners feel marginalized in the licensing process, they often abandon their role as monitors of mining activities. They leave only the state security forces, who generally know very little about the local terrain, and thus cannot effectively address the illegality without local support.

2.6 Types of Mining in Ghana

The Ghanaian mining sector employs two effective methods in its operations: large-scale mining (legal) and small-scale mining (both legal and illegal) dependent on the differences in modes of extraction, the legality of operations, quantities extracted as well as the extractive capacities.

2.6.1 Small-Scale Mining

Small-scale mining in Ghana refers typically to using traditional methods to extract precious minerals, notably gold and diamonds. However, other industrial minerals like salt, sand, gravel, among others, are also mined on a small-scale basis in the

country. In developing countries, it is an activity mainly driven by poverty (Owusu & Dwomoh, 2012). It is a practice that consists of undeveloped ways of extracting minerals, extreme manual processes, hazardous working conditions, and continuously affects human and environmental health negatively. Almost 80 - 100 million people are currently engaged in illegal mining in the world and also depend on it for their livelihood.

Small-scale mining requires intensive human resources with no need for a particular skill or knowledge of advanced technology. However, the capital investment involved in its operation is limited and leads to low productivity. The law in 1989 (PNDCL 218) reserved the small-scale mining activity for Ghanaians. Quite recently, several illegal small-scale gold miners arrested in Ghana were mostly Chinese, Nigerians, and Malians (Kessey&Arko, 2013). There are two types of small-scale gold miners in Ghana, namely the licensed or legal small-scale gold mining units and the unlicensed or illegal small-scale gold mining units. It appears there is a thin line, either organizationally or technologically, between the legal and illegal mining except that legal mining activities possess the security of tenure on a demarcated concession for an agreed period (Kessey&Arko, 2013). Also, it should be noted that, in Ghana, mining concessions are not approved for mining to be done in restricted areas such as forest and game reserves, riparian areas, sites close to residential areas, and other public infrastructure. Any mining activity which takes place in these areas is illegal.

In the case of gold, operators are given licenses by the government to mine in a designated area, not more than 25 acres for 3 to 5 years (Hilson, 2001). Frequently, a licensed operator employs between 5 and 20 groups of tributers consisting of 5 to 10 workers each that excavate the ore bearing rock and process gold. The agreement is

that the tributers keep two-thirds of the profits, and the remaining third is given to the concessionaire (Hilson, 2001).

2.6.2. Large-Scale Mining

Large-scale mining generates more than 95 % of the world's total mineral production and is a source of income for approximately 2.5 million people across the world (Fatawu & Allan, 2014). In Ghana, there are more than 15 large scale mining companies with more than half of them operating gold mines, one bauxite mine, and one manganese mine. These companies are mainly owned by private companies with a 10 % free share and a free 20 % share for the government. The government of Ghana focuses on promoting the interest of large-scale mining companies as their operations are considered to be legal. But on the contrary, some of the operational standards and behavioural conducts have negative impacts on the environment and the rivers surrounding such mines. These companies use their legal status without caring about the environment (Fatawu & Allan, 2014).

The operations of these companies are in three stages: mining, processing, and mineral conveyance. Large-scale mining involves the sophisticated use of machinery, and water is used for cooling the cutting edges and also for friction induced-ignition. The water is directed from nearby watercourses to serve these purposes. Surplus mine water could either be treated for reuse or discharged back to its source. However, due to the high cost of treatment, most of these companies resort to discharging the chemical- infiltrated water back into rivers, which is inappropriate (Fatawu & Allan, 2014).

2.7 Ownership of Mining Business in Ghana

The ownership structure of the industry can be categorized into two main phases. In the post-independence phase (until 1983), there was almost 100 per cent state ownership, with only one exception, the former Ashanti Goldfields Corporation (Minerals Commission 2010). Furthermore, in 1972, the state acquired a majority (55 per cent) interest in the non-state-owned mining operations (Minerals Commission 2010; International Council on Mining and Metals, 2015).

The second phase is the post-1983 Economic Recovery Program phase, with a push towards attracting foreign investment, privatization, and state divestiture. The sector is now mostly foreign-owned. The Government of Ghana has a minority (10 per cent) free carried interest share in most of the primary active large-scale mining operations as shown in with Newmont and AngloGold Ashanti as exceptions (International Council on Mining and Metals, 2015).

Local equity participation in the sector is also very minimal, especially in the large-scale mining sector: domestic players make up 24 per cent of the sector while foreign companies make up the remaining majority (KPMG International 2014). The small-scale mining industry is reserved for Ghanaians (International Council on Mining and Metals, 2015).

Although stakeholders describe an influx of foreigners with heavily mechanized illegal mining in the sector, there is hardly any official data to enumerate the extent of foreign influence in the sector. However, in 2014, the Government of Ghana deported about 5,000 foreigners reportedly involved illegally in small-scale mining (Ministry of Finance and Economic Planning 2014).

2.7 Revenue from Mining Sector

2.7.1. Mineral royalties

In Africa, the process of revenue distributions from mining activities extensively differs. Ghana and Namibia have created the Minerals Development Fund (MDF) for distribution purposes (Otto, 2006). South Africa's alternative mineral royalty distribution is its newly published Mineral and Petroleum Resources Development Act (MPRDA) funds are distributed to pays for services and for allocating to lower levels of government (Otto, 2006). In Mozambique, mining laws provide for a percentage of royalties to be paid directly to lower levels of government (Otto, 2006).

In Ghana Mineral Development fund was formed in 1991 was to make available a portion of mineral royalties to be used directly for the benefit of mining communities, for research, and other projects related to mining. Besides, part of mineral royalty income generated from mining development is returned to communities precisely affected by mining (Otto, 2006). The mineral companies lawfully are required to pay mineral royalties to the state (a range of between 3 and 6% of the value of the gold they mine) immediately they commence mineral production in the country. Payments are sent to the Large Tax Unit of the Internal Revenue Service who then pays into the consolidated fund. Mineral royalties payments are made quarterly by mining companies. The government retains 80% of the mineral royalties paid by mining companies to internal revenue service in the consolidated fund (GHEITI report, 2012). Therefore 10% is paid from the consolidated fund to the Minerals development fund, 10% is paid to the Office of the Administrator of Stool Lands (OASL) (Poku, 2016).

2.7.2 Ground rent

The ground rent is a form of funds paid by mining companies and other companies to the owners of the land. In Ghana, mining activities made by companies are done on stool lands. Accordingly, companies pay ground rent to the accountable office; thus, the office of the Administrator of stools Lands. Customarily amount paid as ground rent depends on the size of the concession (GHEITI report, 2008; Poku, 2016).

2.7.3 Property rate

Property rate is levies demanded on buildings, plants, and other immovable structures to the ground. The District Assemblies independently determine this fund after applying a formula (Rater impost) to valuation figures (GHEITI report, 2008). The district valuation board, with approval from the regional valuation board, further determines figures for properties. Funds from the mining companies are applied as internally generated funds by the District Assembly used for recurrent expenditure. Property rate is precisely collected from the mining companies; payment mode is, however, determined by the mining companies where some may prefer to pay in instalment (Poku, 2016).

2.7.4. Cooperate tax

Corporate tax presently is fixed at 25% of Net Profit (GHITI report, 2008). Mining companies are required to submit their yearly returns four months after the end of the accounting year. Self – assessment is permitted to estimate profits for the year and pay deposits based on their assessment. The country changed the capital allowance rules in 2012 for the mining sector. Therefore, capital allowance is 20% per annum on a straight-line basis. In 2016, cooperate tax was the most significant revenue paid by six participating mining companies, namely Ghana Manganese Ltd, Newmont Gold

Ghana Ltd, Chirano Mines, West Africa Quarries, Gold Fields Ghana Ltd, and GSR Wassa (GHEITI, report 2014; Poku, 2016)

2.7.5 Dividends

In every mining leaseholder, the government retains 10% non-contributing shareholding. The 10% rate of government holding may be modified in a condition where exceptional agreements exist. The Non-Tax Revenue unit under the Ministry of Finance and Economic Planning formally collect the government's share of dividends when declared by mining companies (Poku, 2016).

2.8 Unregulated Mining

Illegal mining is prevalent in most African communities where minerals are found, and Ghana is not an exception. A synonymous word to this term is as 'galamsey.' Mining is said to be illegal when it is practised without a permit or in unapproved areas like the forest reserves, game reserves, or near water resources even with a secured permit (World Bank Group Department, 2002). Illegal mining has been given a lot of media publicity and has created public concern on the perceived extensive damage it has caused to forest cover. It is estimated that about 300 000 to 500,000 Ghanaian artisanal miners work without an official license or illegally and the have contributed about $ 461.1 million to Ghana's economy since 1989 (Tschakert, 2009). Thus, a significant contribution to mining revenue is made by the artisanal and small-scale mining sector whose operations are mostly classified as illegal (Hilson, 2001).

Illegal mining activities are artisanal and are also small-scaled with no legal support. Artisanal mining broadly refers to mining by individuals, groups, families or cooperatives with minimal mechanization, often in the informal sector of the market (Hentschel et al. 2002). According to the World Bank Group (2001), Small-scale

mining is mostly a poverty-driven activity, typically practised in the poorest and most remote rural areas of a country by a mostly itinerant, poorly educated populace with few employment alternatives. Despite ASM being a livelihood sustaining activity, is characterized by a lack of or very reduced degree of mechanization. A low level of occupational safety; exploitation of marginal and minimal deposits, which are not economically exploitable by mechanized mining; low productivity; low levels of income; lack of social security; insufficient consideration of environmental issues; and working illegally (Hentschel *et al.,* 2002).

The activity of illegal mining (locally referred to as "galamsey"), which to a greater extent are not regulated and operate on a small-scale basis in the community, leads to environmental severe havoc and destruction. The most method employed is surface mining (of which strip mining is one form). The miners uncover the minerals by removing the underlying vegetation cover, rocks, and other strata. Also, enormous quantities of the vegetation cover are gouged out, inverted, and buried, converting the natural terrain into raw, bare, lifeless spoil banks (Greenwood & Edwards, 1979). Consequently, more enormous portions of the vegetation cover in the mined areas lose their properties to be used for any other purpose (Charis, 1994).

The nature of illegal mining is stereotyped. Women have always played critical roles in different stages of the operation. In Ghana, women often do the same labour as men in the gold industry. It has been noted that female participation in artisanal mining can be either direct (thus, direct engagement in mining operations) or indirect (thus, servicing the mine sites) (Gunson & Jian, 2001). Heemskerk (2003) further described the roles played by women to include serving as panners, cooks, mining operators, nightclub entertainers, sex workers, and merchants, among other professions. While

some women work marginal jobs, others are potent managers of multiple mining teams. Women occupy a distinctly marginal role in the management of small-scale mining operations worldwide. However, they are less involved in owning mining sites or in the decision-making positions as their male counterparts and owning concession. (Labonne, 1996; Susapu and Crispin, 2001; Hinton *et al.,* 2004). In most cases, women never work underground (Chakravorty, 2001; Gunson and Jian, 2001; Hinton et al., 2004) but predominantly engaged in panning, sluicing, and separation of gold.

Similarly, children have the role they play in the sector. UNICEF (2012) describes the engagement of children in the sector as a boy or a girl above ten years of age who, depending on social and cultural practices, is involved in digging, crushing, grinding, and washing ore or in support services and petty trade. Similarly, ILO (2005) note that children perform all sorts of low-skilled tasks, including building trenches, carrying loads of gold ore on their heads to washing sites, washing the ore, amalgamating the gold using mercury, and selling the product. Reports from the ILO (2005) indicated that small-scale mine operators principally engage children between ages 10 and 18 years old who are paid minimal daily wages. These children perform all sorts of low-skilled tasks. These tasks Include digging trenches, carrying loads of gold ore on their heads to washing sites (done mostly by girls), washing the ore (done mostly by boys), amalgamating the gold using mercury, and selling the product (ILO, 2003; ILO, 2005; Hilson, 2008).

2.8.1 Causes of Unregulated Gold Mining in Ghana

Literature and observations highlight what is classified in this paper as major and minor causes of illegal mining in Ghana. These are conditions that compel people to venture into artisanal mining and by their modes of operation and in the light of

regulations considered as illegal mining. The major or immediate causes are conditions that affect individuals and cause them to engage in illegal mining. In contrast, the minor causes indirectly influence the economic conditions of people to engage in illegal mining. The major causes include poverty worsened by marginalization, unemployment deepened by structural reforms, and economic restructuring. The minor causes, on the other hand, include bureaucracy, loss of access to and control of land and resources, the influence of global actors, and weak regulations. The major causes of illegal mining are, in most cases, economic factors. Although it has been pointed out that not all artisanal miners are illiterate or poor (Nyame & Grant, 2014), poverty is identified as one of the main causes of illegal mining (Banchirigah, 2008). Financial difficulties distress people and compel them to engage in illegal mining. Most people, especially from mining communities, see artisanal mining as the only viable livelihood option available (Hilson & Garforth, 2012). Few barriers to entering illegal mining as it is a local community arrangement governed by customary law as opposed to government partnerships governed by statutory law. Characterizing large scale mining and legal artisanal mining makes it appealing to individuals that lack financial capital (Hilson & Garforth, 2012). Another major cause of illegal mining is unemployment, especially emanating as a consequence of SAP (Nyame & Blocher, 2009). Also the urban unemployed move to rural areas and engage in illegal mining and the rural farmers who have lost comparatively viable land to large scale miners and artisanal miners engage in illegal mining (Hilson & Garforth, 2012). Lack of formal employment opportunities compelled both the rural and urban unemployed to consider illegal mining as an option for securing a livelihood. The problem in real sense is lack of alternative employment avenue forces people to engage in illegal mining (Teschner, 2011),

where even arable lands originally used or leased out for farming are now increasingly being used for illegal mining without reclamation (Nyame & Blocher, 2009). The quest for restructuring the economy in the past few decades is a major cause of illegal mining in Ghana. The increased integration of third-world land users into global markets under unequal relations of power undermines the local land users' localized environmental knowledge and long histories of successful adaptation to sometimes harsh and unpredictable environments. People in mining communities as rational beings, also tend to realize a maximum economic gain from available resources in response to the notion of economic diversification. The extraction of a valuable resource to mining communities on a small scale has been a traditional historical source of livelihood to the local people (Banchirigah, 2008). The combination of farming and artisanal mining was a common practice in mining communities, and the declining incomes that faced farmers in the process of market liberalization (Hilson & Garforth, 2012) compelled many to venture in illegal mining. The inadequacy of reliable alternative source of livelihood makes people engage in illegal mining without conforming to environmental regulations to ensure sustainable resource exploitation for ensuring sustainable development. Alongside the major causes of illegal mining identified are the minor causes since they are not mutually exclusive. The minor causes are the economic forces which are not attributed to the individual's economic failures but social and political processes that shape the economic landscape within which the people make decisions and are compelled to engage in illegal mining. One of such factors is bureaucracy. The processes for securing legal mining permits and concessions for artisanal mining are cumbersome and characterized by delays and high cost. According to Nyame & Blocher (2009), the government leases land to large scale companies, and this contract is formal and

predictable. Still, artisanal miners prefer local community arrangements because of both parties like the informality and flexibility of such a contract. The bureaucratic requirements are the main obstacle to securing a license for artisanal mining; hence the unregulated illegal mining (Hilson & Potter, 2005). Also, loss of access to and control of land and land resources is a minor cause of illegal mining in Ghana. The competing interests between local communities and the government concerning the favourable methods of mining have, in most instances, led to the marginalization of local people from their land and livelihood resources. Banchirigah (2008) points out that large scale mining concessions in the town of Tarkwa have, during the 1990s, displaced 14 farming communities with a population of over 30,000. Which has intensified the already prevailing unemployment issue since large scale companies are not able to provide substitute employment for the majority of the displaced people (Banchirigah, 2008).The marginalization of the local people due to the hand out of concessions to large scale mining companies has pushed groups of people to the margin where they are often forced to live off ecologically marginal lands or otherwise find alternative sources of livelihood. For those that still engage in farming after dislocation, ecologically marginal lands often become the limited farmland available. Given the decline in arable land, the marginal land gradually loses fertility partly due to over-cultivation and the yields decline, making it difficult for subsistence on agriculture.

The people subsequently resort to artisanal mining without meeting the statutory requirements, hence the description of this livelihood activity as illegal mining. Loss of farmland and loss of access to land resources exacerbates the economic conditions of communities, expose them to poverty, and push them into illegal mining. These quite alarming because large scale mining takes possession of the land legally, which

are capital intensive and not labour demanding in comparison to farming and artisanal mining. Mineral-rich lands of communities from which they earn supplementary income were lost to large scale mining. The land lost to large scale mining has historically not only been used for farming but also artisanal mining (Bush, 2009). The Structural Adjustment Programme (SAP), which emanates from the influence of global actors, is another minor cause of illegal mining in Ghana. The policy was adopted in the 1980s as measures in response to the fiscal problems of the government. This has created economic difficulties for many Ghanaians, in particular for the most vulnerable groups such as food crop farmers (Agbesinyale, 2003). The actions taken included austerity measures and structural reforms with a focus on privatization and liberalization of the economy. They were inducted as a part of the Bretton Wood's institutions agreement the Government of Ghana concerning debt relief (Agbesinyale, 2003). The economic liberalization was aimed at attracting foreign direct investment (FDI) to help boost economic activities (Sowa, 2005). There have been increases in the number of concessions given to large scale mining companies in response to the agreement, thus leading to a decrease of viable land for alternative economic activities. The associated privatization of state and parastatal institutions led to the retrenchment of public sector employees, causing a rise in unemployment in Ghana, and many of the newly unemployed individuals sought employment opportunities in illegal mining (Hilson & Potter, 2005). Lastly, weak regulatory regimes are a minor cause of illegal mining in Ghana. The duality of the land tenure system in Ghana, where the government has the legal right to land resources and traditional authorities are acting as custodians of the land, makes access to land complicated. The majority of lands are vested in traditional authorities (Nyame & Blocher, 2010). One common way for people to gain access to land is by

seeking approval from the custodians. The relatively easier means of securing lands from traditional authorities in comparison with the difficulty associated with going through formal institutions make it more attractive to access land through traditional authorities lacking the formal land tenure requirements (Nyame & Blocher, 2010). Law enforcement also appears inefficient and lacking (Teschner, 2011), and this facilitates the widespread of illegal mining.

2.9 Implications of Unregulated Artisanal Small Scale Mining activities

Unregulated ASM activities have several implications on agriculture, human health, and movement (migration), environment, and others.

2.9.1. Unregulated ASM and Agricultural Activities

Generally, agriculture is the dominant activity carried out where mining operations occur and serves as a principal livelihood for surrounding communities. However, the excessive spillage of chemicals such as cyanide and mercury affects crops and health threats to farmers resulting in unproductive farmlands (Ontoyin & Agyemang, 2014). The destruction of vegetation and farmlands by miners affect food security and also drives farmers from sustainable livelihood to instead an alternative income-generating businesses (Hayes & Wagner, 2008).In this regard, alternative livelihood poses an environmental threat (Banchirigah & Hilson, 2010).

The economic aspect, although high proportions of idle youths find solace at such a mining site, the negative effect on food security is enormous (Jaiye, 2001). Fertile expanses of land that are devastated and rendered uncultivable for an extended period of years deny the farmers' access to such scarce land, hence a general decrease in food production. Even after the mine has been abandoned and re-cultivated, the

residual changes in soil physics and chemistry were still available. Yet, the reclamation fund, which was created in an attempt to implement policies for reclaiming small scale mining sites, has been abandoned. It was so because a certain percentage of revenue from small scale mining to be held by the government and used to finance the reclamation programme upon request. However, this initiative had challenges with extracting funds from small- scale mining parties (Hilson, 2001).

In most situations, the mined lands are degraded, which has a long- term loss on the ecosystem and overburden the land surface. Land degradation also directly affects losses of soil, organic carbon nutrients, and regulation and indirectly affects the loss of productivity and wildlife habitat. 1992 Earth Summit has considered threats to sustainable development posed by land degradation and the 2002 World Summit on Sustainable Development; however, the response has been crippled (Herzog & Lausch, 2001).

Activities of mining and its consequents were recorded as degrading to the land and other resources significantly. The excessive removal from the mine area accounts for the reduced rain forest and fertile topsoil for cultivation. Also, among mining operations, blasting, or sophisticated machines results in destruction and generating of waste (Sahu & Dash, 2011).

In Ghana, most lands are classified as low fertility and are subject to degradation; factors influencing the degradation include population, increased urbanization, and climate change (Economy-wide & Assessment, 2007). These causes reflect in crop production that contributes to soil erosion, overgrazing, pollution, and a dissertation from deforestation (Economy-wide & Assessment, 2007).

To sustain and restore crop production, proper soil management, and other natural policies should be enrolled to protect and preserve development. Ghana's endorsement and participation in the Stockholm conference in 1972 and the Earth Summit in Rio signified environmental efforts toward sustained living conditions (Akabzaa, 2001).

Boadi et al. (2016) estimated the influence of illegal mining operations within the Offin shelterbelt forest reserve in Ghana and its impacts on the livelihoods of fringe communities. They noted that, within five years, illegal mining had degraded 2.5 km2 (4.4%) of the total area of the forest reserve and had destroyed cocoa farms and water sources and that farming among respondents reduced from 90 per cent to 76 per cent after illegal mining. The study also observed that the relatively high cost (US$ 6424.1) involved in flushing out and the subsequent return of such miners pose a threat to sustainable forest management.

Mancini and Sala (2018), in their systematic review, also noted that land competition could arise when mining projects are developed, endangering the wellbeing of the local population and leading to their impoverishment. They noted that almost 30 per cent of the scrutinized studies report land expropriation, displacement, and resettlement of local communities. Again, they observed that mining could reduce the amount of arable land for the rural population, which implies a negative impact on livelihood and consequent food insecurity (Mancini, & Sala, 2018).

2.9.2. Impact of Unregulated ASM on the Environment

Other studies have documented how illegal mining activities impact lives and the environment as a whole (Dagden & Cobbina, 2012; Mensah, Mahiri, Boadi et ai 2016). Tom-Dery, Dagden, and Cobbina (2012) investigated the effect of illegal

small-scale mining operations on vegetation cover of Arid Northern Ghana using Simpson's reciprocal diversity index. They noted that mining significantly affected vegetation cover. In their further analysis, it was found that the Simpsons reciprocal diversity index of tree species at the mined area was 8.33 as compared to 10.8 for the unmined area. For shrub species, the Simpsons reciprocal diversity index was 8.33 for the mined areas while that of the unmined was 10.2. Additionally, the low mean density of 2.4 individual trees per 100 m2 and 5.6 individuals per 100 m2 was recorded in the mined and unmined areas, respectively. Which Implies that, should such activities be left unchecked, the vegetation containing important species supporting the mans' survival will go extinct.

Mensah, Mahiri, Owusu, Mireku, Wireko, and Kissi (2015) also focused on the mining activities' impact on the environment in Prestea in the western region, Ghana. They noted that those significant rivers in the area such as Ankobra and Asesree, which used to serve as the primary sources of water for domestic purpose in the surrounding townships, was heavily polluted by mining activities. In the same vein, they found out that the mining operations especially that of the illegal small scale mining, are carried out in the open air without appropriate safeguards and environmental standards. And in the process releases contaminated water into the surrounding environment, thus polluting nearby rivers, soils and vegetation.

The findings from the study showed that mining activities, especially that resulting from illegal small-scale mining (popularly known as 'galamsey') deplete environmental resources such as water, soil, the landscape, vegetation, the ecosystem, among others. The study noted that significant rivers in the region had been heavily polluted, especially by illegal small-scale mining. Land in areas surrounding mines

has been rendered bare and susceptible to increased erosion and loss of viability for agricultural purposes, among other uses. Also, they observed that increased clearing of vegetation for mining areas has adversely altered the hydrological regimes and patterns in the western region of Ghana. In contrast, important soil organisms have been destroyed. Stable soil aggregates disrupted and eventually depriving the soil of organic matter and low levels of macronutrients and soil fertility necessary for plant growth and crop production (Mensah *et al.,*2015).

According to Sanborn, it is estimated that 20% of Peru's $ 10 billion gold export comes from illegal mining (Sanborn & Yong Manrique, 2013). In Ghana, the main environmental problem caused by small scale activity is mercury pollution from gold processing and mercury amalgamation method, which is primarily dependent on since it is cheap and dependable (Hilson, 2001) regardless of all the policies and institutions.

Also, notwithstanding the great benefit earned from the mineral gold, the extreme environmental degradation in most mining communities in Ghana is a significant threat that certainly cannot be overlooked (Mensah et al., 2015). Galamsey operations are highly practised in the rural part of Ghana since their activities are illegal gold extraction begins mostly in the evenings. The results of their activities are enormous in the environment, such as the loss of farmlands (Djurfeldt *et al.,* 2005).

Artisanal miners degrade vast expanses of forest, digging trenches and upturning of vegetation, which turns land bare and exposes to erosion (Hilson, 2001). It is estimated that 15,000ha of land are potentially affected by farmlands (Iddirisu &Tsikata, 2015). Excavated lands and trenches are later unsuitable for any other purpose instead become a breeding area for malaria-infested mosquitoes and filled

with stagnant water (Hilson, 2001), resulting in excessive damage to the land. The impact is seen on the cracks and collapsing of buildings due to blasting to reach the targeted mineral deposit (Jaiye, 2013). Deforestation involves cutting down trees and plantations, permitting galamsey operators to extract the minerals. The high risky nature of the job has led to fatalities in the mine sites due to uncovered pits, bad weather and also the ground caved on them.

Generally, galamsey operators are not educated and ill-informed about the procedural approach to mining activities with the country (Jaiye, 2001), making them deficient on the health threats that pose to them and also the unskillful nature of their activities poses a concern. Environmental related problems from galamsey administratively have gained little attention, and efforts were made to curb and disseminate mercury retort in the 1990s (Corral & Earle, 2009). To enable recycling spent mercury and reduce the emission of the chemical but a refusal to subsidize the equipment leads to project failure (Hilson, 2001).

In Ghana, most of the accessible rainforests are shrinking partly due to mining activities (Hansen, Lund, &Treue, 2009), and the situation is not different from illegal mining. From the country's original forest cover of 8.2 million hectares at the beginning of the 20th century, only an estimated 1.6 million hectares remain. The deforestation rate is 2.0% leading to an annual loss of around 135.000 ha (Ministry of Lands and Natural Resources, 2012). With the dependence on the forest as a source of livelihood to local people, protection of the remaining natural forests may be a challenging goal to achieve given socio-economic constraints associated with mining (Appiah et al., 2009).

2.9.3. Unregulated Mining and Migration

ILO defines labour migration as a worker who migrates from one country to another intending to be employed and includes a person regularly admitted as a migrant for employment (International Labour Migration). Migration in Africa has a long history of population movement aimed at restoring ecological balance. Most essentially, a search of security and food occurred over a wide area (Hance, 1970). In Africa, various forms of movements within and across were influenced by a natural disaster, commerce, pastoralism and the search for employment and other circumstances characterized movements (Adepoju, 1995).

As part of Ghana's history mining and mineral industry predates over centuries when ethnics used gold as an embodiment of power and influence of various tribal groups (Nyame & Grant, 2007). The introduction and expansion of the mining sector towards export product created a high demand for labour which indigenous people could not satisfy (Adepoju, 1995). The mining industry in Ghana attracted labour migration during the pre-independence era. Migrants from Nigeria, Burkina Faso, and Mail engaged directly or indirectly in the mining sector with their skills ranging from skilled to semi-skilled (Nyame & Grant, 2007) also, many indigenous shifted into the mining industry.

The existence of mining activities has attracted and generated a source of income for many. Comparatively, the beautiful and well-equipped nature of mining communities to other parts of Ghana has provided the spatial environment of immigrants (Nyame, Grant, &Yakovleva, 2009). Migrants settle in particular mine areas due to the concentration of mineral reserves in volume and grade. The nomadic nature of illegal miner's activities results in galamsey operators hopping from one mine to the other.

Accordingly, the varied skills needed at the mine, mining operations do not only attract Ghanaians but mainly across border migrants including Togolese, Burkinabe's, etc. (Nyame et al., 2009) operate in the mine.

Both mining and migration contribute to the growth of a nation. Migrant workers contribute towards the development of their countries of destinations. In contrast, countries of origin primarily benefit from their remittance and skills acquired during migration experience (ILO, 2012) presently, according to ILO, factors such as globalization, demographic shifts, conflicts, income inequalities and climate change will enhance more workers and families to cross borders in search of employment and security (ILO 2012).

2.9.4. Unregulated ASM and Health

The mining sector is a very instrumental segment of the extractive sector. Still, it has one of the terrible environmental consequences, especially among illegal mining, and having adverse effects on the livelihood and survival of resident communities (Boateng et al., 2014). Several illegal miners are dead as a result of their mining activities, and this continuous trend is a threat to society (Amankwah, 2013). Additionally, the natural environment, which was somehow stable and safer in the past, has been threatened as a result of illegal or unregulated mining and all sort of extraction activities (Yunana& Banta, 2014).

Although the benefits mining operations add to the people in mining communities, the adverse effects of health are immeasurable. A mineral deposit in the soil does not guarantee the wealth of miners (Conant & Fadem, 2008). The nature of mining operations is to exploit; therefore, it exploits not only the land but rather the human

resource involved. The earth is mined for minerals, which in all its forms threaten, with diverse effects on human health in both large and small scale mining. Understanding the long term implication of mining on the well-being of miners will help improve and mitigate the harm associated with mining.

World Health Organization defines health as a state of complete physical, mental and social well- being and not merely the absence or of the disease or infirmity (WHO, 1946). This definition indicates how productive one will be if one is physically fit. Health matters related to mining can be very sickening; the activities of mining mostly cause fire outbreak, explosion or collapse of buildings and mine tunnels. Miners usually get poisoned as a result of inhaling dust, and this causes the black disease. Lung causing severe breathing problem, usually underground miners separating minerals from the rocks, mostly women and children are regularly involved in this section of mining, and it exposes them to these diseases. Chemical spills and heavy metals in the long term lead to death. Again heavy lifting, use of vibrating machines can affect the nerves and blood circulation. Working in a scorching environment without water can cause stress (Conant &Fadem, 2008). Children used for mining also have a high chance of getting affected by the dust from the mines.

Illegal mining activities infringe on several effects on crucial persons involved. A study that compared socio-demographic profiles, work profiles and injury rates among miners working in licensed versus unlicensed small-scale gold mining sites observed 121 injuries among the workers (Calys-Tagoe et al., 2017). In their further analysis, it was evident that the injury rate for those working in un-licensed mines was higher than their counterparts in the licensed mines. Additionally, there was a

significant difference in injury rates between those working in a licensed mine versus an un-licensed mine (Calys-Tagoe et al., 2017).

2.10 Approaches employed to check Unregulated ASM

Illegal mining continued in Ghana even after the introduction of modern exploration and mining methods to the country by the Frenchman Piere Bonnat and others circa in 1870 (Samuel, Oladejo, & Adetunde, 2012). Because their activities endanger the environment and key actors involved, their operation cannot be left unchecked. Consequently, the Government of Ghana in 1986 enacted the PNDC Law 153 to register and regulate the activities of mining companies. Under the PNDC Law 153, massive capital and technical ability were required, thus going into large-scale modern operation. It also did not consider artisanal mining or small-scale mining. Before 1989, artisanal mining or small-scale mining were considered illegal mining (galamsey), even including the marketing of gold from it (Samuel, Oladejo & Adetunde, 2012).

However, this law could not stop the practice of illegal mining activities. The practice kept flourishing and winnings were mainly smuggled for sale outside the country through a well-oriented black market. The increasing awareness of the fact that the continued marginalization of the small-scale gold mining sector was detrimental to the economy led to a study into the phenomenon. This study resulted in its regularization through the enactment of the Small-Scale Gold Mining Law, PNDC Law 218, in May 1989 (Samuel, Oladejo, & Adetunde, 2012). Additionally, the state agency responsible for marketing diamonds, (thus the Diamond Marketing Corporation-DMC) had its mandate expanded and was re-named the Precious Minerals Marketing Corporation (PMMC) to provide a ready market for both gold

and diamond produced by resident small-scale miners (Samuel, Oladejo, & Adetunde, 2012).

To a greater extent, the enactment of the Small-Scale Gold Mining Law, PNDC L 218, legalized the operations of Small Scale Mining (SSM) in Ghana. However, the difficulty is how to differentiate between the activities of small-scale miners and illegal miners since the term galamsey is interchangeably used to refer to both small-scale mining and illegal mining (Samuel, Oladejo ,& Adetunde, 2012). The Minerals and Mining Act 2006 (Act 703), which is a continuation of the Small-Scale Gold Mining Law, PNDC L 218 enacted in 1989, further gave the procedures of issuing a license to a small-scale firm. Based on Small-Scale Gold Mining Law, PNDC L 218, small-scale gold mining licenses may be granted to Ghanaians 18 years of age and older, and are subject to the following conditions:

- A maximum allocation of 1.2 hectares of land in the case of a grant to any one person or group of persons not exceeding four in number;
- A maximum allocation of 2.0 hectares of land in the case of a grant to any group of persons not exceeding nine in number; and
- A maximum allocation of 10 hectares in the case of a grant to a co-operative society of 10 or more persons and registered companies (Samuel, Oladejo, & Adetunde, 2012).

Also, the Small-Scale Gold Mining Law, PNDC L 218, was enacted in 1989 with its continuation in the Minerals and Mining Act, 2006 (Act 703). The Minerals and Mining Act, 2006 was not efficient to deal with rampant illegal mining. Hence the report of the Ghana Chamber of Mines (GCM) indicated that illegal mining activities are still prevailing. And those illegal mining activities have been increasing with an

estimated number between 300,000 and 500,000 artisan miners with such workforce even now operating in daylight (Ghana Chamber of Mines, 2008).

The benefit obtained from mining activities cannot be shut down though it possesses environmental, health and livelihood implications. As such, Ghana has built an institutional framework and organizations to support and regulate the mining industry. These are the Ministry of Mines and Energy, the Minerals Commission, the Geological Survey Department, the Chamber of Mines, the Mines Department, the Environmental Protection Agency, Lands Commission, Land Valuation Board and the Forestry Commission. These organizations provide support to ensure optimal exploitation of the country's natural resources (Akabzaa & Darimani, 2001).

The Minerals and Mining Law of 1986 provides the overall legislative framework for mining in Ghana. The law established royalty and corporate tax rates in the mining industry. It was amended in 1994 and 2005 as Ghana transitioned into the constitutional rule. The amendments focused on revising the corporate tax and royalty rates and limiting the duration for the mining lease. Besides, three new mining laws were implemented after the legalization of small-scale mining. They were the Small-Scale Gold Mining Law, the Mercury Law and the Precious Mineral Marketing Corporation Law. The Small-Scale Gold Mining Law covers the registration, licensing and the establishment of support centres for small-scale mining. The Mercury Law legalizes the purchase of mercury for mining purposes. At the same time, the Precious Minerals Marketing Corporation Law provides official marketing services for small-scale gold and diamond miners and promotes trade in precious metals, diamond, and jewellery in and outside Ghana (Bonsu & Quansah, 1992; Aryee, 2001; Hilson, 2002; Aryee, Ntibery & Atorkui, 2003; Hinde, 2010).

The two prominent institutions with direct supervisory and oversight responsibilities over the mining sector in Ghana are the Ministry of Lands and Natural Resources and the Mineral Commission. The Ministry of Lands and Natural Resources is responsible for all aspects of mineral resource exploration in Ghana. It formulates policies and grants licenses for mining and mineral exploration. The Mineral Commission, established under Article 269 of the 1992 Constitution of Ghana and the Minerals Commission Act of 1986, is the principal institution for providing a regulatory framework for mining in the country. It administers the Mining Act, making mineral policy recommendations, promoting mineral developments in the country and advising the government on mineral-related issues. It also ensures compliance with the mining and mineral law and regulation. It operates under the purview of the Ministry of Mines (Harwood, Hacker & Mott, 1999; Mensah, Mahiri, Owusu, Mireku, Wireko, &Kissi, 2015).

These institutions are also supported by agencies such as the Environmental Protection Agency, the Geological Survey Department, the Mines Department, the Lands Commission, and the Chamber of Mines. The Environmental Protection Agency (EPA), established under the Environmental Protection Agency Act of 1994, is responsible for all environmental issues in the country. This agency formulates and implements environmental policies and enforces compliance with environmental laws and regulations. The Mining Section of EPA provides direct oversight on the mining industry with key responsibilities such as processing environmental permits and certificates; monitoring of mining activities; environmental assessments; investigating complaints relating to mining activities; and creating environmental impact awareness (Mensah *et al.,* 2015).

The Geological Survey Department provides geological study support to the government and the mining industry. The Mines Department has the oversight responsibility for ensuring compliance with health and safety inspections standards by mining companies. The Lands Commission provides legal records of issued mining licenses and examination of all new applications. The Chamber of Mines is an association of mining companies and has the responsibility of addressing immediate concerns of all stakeholders within its jurisdiction (Harwood, Hacker & Mott, 1999; Hilson, 2002; Aryee, Ntibery & Atorkui, 2003; Mensah, Mahiri, Owusu, Mireku, Wireko, &Kissi, 2015); which implies that both legal and institutional framework has been adopted in regulating mining activities in Ghana in general including illegal mining. In summary, these institutions play the following function, with the Ghana Minerals Commission serving as a leading institution that regulates mining activities in Ghana (ILO&IPEC, 2013). The Ministry of Mines and Energy do overall responsibility for the mining industry.

In contrast, the Minerals Commission recommends mineral policy (thus, providing services for the first contact for prospective investors and source of essential information). Geological Survey Department, on the other hand, undertakes geological studies, including map production and maintenance of geological records. In contrast, the Mines Department also oversees the health and safety inspections and maintenance of mining records. Also, the Lands Commission undertakes legal records of licenses and legal examination of new applications, and the Chamber of Mines serves as an association of representatives of mining companies. Finally, the Environmental Protection Agency also oversees the overall responsibility for environmental issues related to mining (ILO & IPEC, 2013). However, the success of

these approaches might depend on the resourcefulness and competency of stakeholders who are directly or indirectly involved in applying the laws or man the affairs of these institutions.

Apart from the legal and institutional framework, the Governments of Ghana traditionally have tackled the illegal mining problem using an aggressive or force approach. Under such a situation, security personal are used to remove encroaching operators from concessions. Periodic government and industry-sponsored "sweeps" of informal mining camps, however, have generally done little to deter industry participation (Hilson et al., 2007). However, considering the growing population of illegal small scale mining, which was estimated around 13 million globally (ILO, 1999; Andrew 2003), it is influential policymakers to reconsider their approaches to dealing with illegal operators, the majority now accepting that cooperation.

2.11 Livelihoods Strategies in Mining Communities

Mining in Ghana is characterized by significant socio-economic effects such as displacement of people and property, loss of arable lands, livelihoods and environmental pollution such as acid rain, contamination of groundwater, air pollution, dust and noise pollution (Aragon & Rud, 2012). As a result, Akabzaa and Darimani (2001) earlier argued that the negative environmental and social impacts of mining far outweigh these macro-economic performances. As such, inhabitants in such communities have to adjust their economic activities that support their livelihood. Hilson and Banchirigah (2009) also indicated that the livelihoods of mining communities in developing countries are structured around a variety of agricultural activities and complementary subsistence occupations whose impact on

the environment is negligible compared to mining operations (Hilson & Banchirigah, 2009).

It is estimated that about 30 per cent of the total land of Ghana's reserves has been licensed to more than 200 mining companies for their operation, including 2 per cent of the country's forest (Hilson, 2002). As a result, most agricultural lands are presently concession of mining companies resulting in farmers losing their farmlands. Usually, farmers reluctantly give up their ancestral farmlands passed on from generations to large mining companies (Mumuni et al., 2012). Under such conditions, farmers have to settle on other economic ventures for survival.

For mining communities to survive, several approaches have been adopted across countries. In Bolivia, an approach that has been very much mentioned is the economic (Banchirigah, 2008). With this approach, residents of mining communities are trained in alternative economic activities such as new and improved farming methods (Banchirigah, 2008). It is often complemented by the provision of start-up incomes as well as fertilizers and insecticides for their farms. Markets to their farm outputs are catered for by various marketing organizations formed by mining companies and provided with capital to purchase such products and transport them to nearby market centres. Storage facilities are also provided to help salvage situations where there is an excess supply of farm products.

A similar approach has been adopted in Tanzania, where residents are trained in animals (sheep, goats, grass cutter and others) rearing as alternative means of livelihoods (Curtis & Lissu, 2008). Offices were created to cater for such investment issues separately. Advice is first given to the residents before training them and subsequently offered them monetary assistance to invest in such ventures

In Ghana, studies suggested that the governments and mining companies could concentrate their efforts to find alternative means of livelihood for residents by training the residents to pursue artisanal mining as an alternative livelihood approach (Hilson, 2009; Bush, 2009; Aubynn, 2009). In a study conducted by Tschakert (2009) in Noyem in Ghana, he observed that about 90 per cent of the residents involved in 'galamsey' were not willing to abandon it for any other alternative source of livelihood. He observed it was because most of the livelihood projects implemented for the residents are assumed rather than what the residents want to do.

Also, mining communities could experience better livelihood through having access to social amenities which could transform lives positively (Mancini & Sala, 2018). The presence of a mine in the territory could contribute to local development when mining companies engage in providing and improving local infrastructures (such as road network, power and water supply), which in turn allow local populations to access health and education services. All these impacts are typically reported at the local level (Mancini & Sala, 2018).

2.12. Sustainability of Alternative Livelihoods Strategy

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living (Haider, 2009). Also, a livelihood is sustainable when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets. And provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (Krantz, 2001). Livelihoods approaches are a way of thinking about the objectives, scope and priorities for development. They place people and their priorities at the centre of

development. They focus on poverty reduction interventions on empowering the poor to build on their opportunities, supporting their access to assets, and developing an enabling policy and institutional environment (Twigg, 2001).

A livelihood is the means, activities, entitlements and assets by which people make a living, which is immediate and continuous, not necessarily for mine closure. It is also a framework that seeks to build the capacity of people to continuously make a living and improve their quality of life without jeopardizing the livelihood option of others either now or in the future by coping and adaptive strategies (Temeng & Abew, 2009).

Within the mining sector, the livelihood concept has been adapted and defined as alternative livelihoods (AL), which are projects that are primarily aimed at compensating and re-establishing those who have been relocated or adversely affected by mine activities. Alternative livelihoods are defined as projects or activities not relating directly to the primary business of the companies in Ghana are mining industry (Temeng & Abew, 2009).

Mining companies are not willing to assume the traditional functions of government in providing general services to their areas of operation. Still, these companies are increasingly pressured by growing international advocacy groups to minimise the negative impacts of mining activities on the environments and the local people. In recognition of the scale of impact of mining activities on the livelihood of local inhabitants in the project area and the fact that mining companies could not provide the needed direct employment to most of the local youth, the companies are obliged to

consider other alternative means for contributing to the community needs (Temeng & Abew, 2009).

In 2005, Newmont initiated a US$6 million private-sector-led "alternative livelihoods" project called the Livelihood Enhancement and Community Empowerment Program (LEEP) as an attempt to mitigate the loss of livelihoods caused by the project's displacement of thousands of poor farmers (Armstrong, 2008). LEEP was designed and is currently being implemented for Newmont by a Non-Governmental Organisation named Opportunities Industrialization Centres International (OICI). The program promotes local production of so-called "demand-driven" commodities as an alternative to farming (Armstrong, 2008).

In addition to LEEP, Newmont agreed to come up with a US$4 million "Agricultural Improvement and Land Access Program" just one week before the Bank approved of the loans. The main focus of the Agricultural Improvement and Land Access Program was to maintain or exceed pre-Project levels of crop productivity and ensure compensated farmers have access to land (Armstrong, 2008). It was to be accomplished by:

- Providing, free of charge, improved agricultural inputs, sufficient for two acres, for one crop season, to every person compensated by Newmont Gold Ghana Limited (NGGL) for cropped land in the Mine Take Area, and that has arable land of two or more acres (Armstrong, 2008).
- Facilitating land access for every person compensated by NGGL for cropped land, and that, at present, does not have access to land for cropping, nor has access to less than two acres of arable land. When

persons obtain access to at least two acres of arable land, they become eligible for two-acre input packages (Armstrong, 2008).

Additionally, some evidence shows that livelihood diversification is the prominent strategy for rural people to survive and improve their standard of living (Ellis, 1998). Danquah, Fialor, and Aidoo (2017) investigated mining Effects on Rural Livelihoods, adopted Strategies and the Role of Stakeholder and Regulatory Institutions in Ghana. In their multinomial logit, it was shown that farmers' choice of livelihood in mining communities was influenced by gender, age, family size, leadership status of household head, labour cost, annual household income, number of years of education and extension training. Additionally, it was known that farmers diversified into non-farm and off-farm livelihood strategies to increase or sustain an income in mining communities.

Apart from diversification, adding values to enhance products from competing for economic activities could sustain livelihood adopted. Fisher, Arora, and Rhee (2018) conducted a pilot study which utilises a rapid rural appraisal of livelihoods in the buffer zone of Tambopata National Reserve in Madre de Dios, Peru, threatened by illegal gold mining and logging. They evaluated three predominant economic activities (artisanal gold mining, Brazil nut harvesting, and fish Farming) in terms of potential economic returns. They noted enhancing value creation at product origin could make existing forest-friendly livelihoods as or more lucrative than extractive ones.

2.13 Unregulated Mining and Human Rights Violations

The relationship between mining and human rights is not well studied. However, some studies offer a convincing argument that indicates that mining could influence

human rights (Adonteng-Kissi, 2015; Adonteng-Kissi, 2017; Mancini &Sala, 2018). In most cases, conflict arises due to prolonged community-level differences in the face of current international standards and increasing expectations for the mining industry to convert the rhetoric of corporate social responsibility (CSR) into real practice. These kinds of conflicts may explode at different levels of the operations of a large-scale mining company's life span.

Generally, one of the sources of conflicts at different levels of community relations is contending for mineral-rich parcels of land (Adonteng-Kissi, 2015). Thus, ownership and control of mineral-rich lands are at the core of many conflicts. Conflicts amongst community stakeholders regarding land use are due to fluidity in land ownership, control and rights, which are common in local communities (Adonteng-Kissi, 2017). The economic, social and environmental welfare of the local populations is usually at the core of such conflicts (Idemudia, 2014).

An extensive synthesis touching on social impact assessment in the mining sector by Mancini and Sala (2018) also observed that violation of human rights could have different forms, including discrimination of vulnerable groups, lack of stakeholder inclusion and respect of indigenous populations, human rights abuse and impacts on cultural and aesthetic resources due to mining activities. They further explained that the mining activity is likely to attract workers from other regions, causing migration flows and a change in the local demographic structure. Consequently, a gender imbalance can emerge due to the prevalence of male workers, undermining social cohesion and spreading problems of psychological or behavioural nature (for instance, alcoholism, drug addiction, prostitution and others). Another critical factor that can heighten human rights violation is inflation as noted in their synthesis. They observed

that inflation and the rising accommodation costs could also negatively affect the local population's wellbeing (Mancini &Sala, 2018).

Another human right violation due to mining activities is denying a person's right to clean water, health and arable land (CHRAJ, 2006; Kumah, 2006). In most cases, farmlands are destroyed without adequate compensations to community members, humans are displaced from their natural residence, and farmlands are finally destroyed. Additionally, mining companies illegally acquire acres of land without compensation (Ghana News Agency, 2012).

2.14 Theoretical conclusions

The greatest challenge facing countries in the world today as they strive to develop is not just a growth in national income, but the threat that environmental degradation is posing to the very survival of humankind. This threat ranges from problems of poor environmental sanitation such as plastic wastes littering, indiscriminate disposal of domestic solid waste, and open-air defecation to the effects of global climate change due to emission of Green House gases like carbon dioxide into the atmosphere. Available evidence indicates that human societies have an unprecedented and dangerous impact upon the global environment (Rosa, Diekmann, Dietz & Jaeger, 2010). What people are doing to the environment upon which their existence depends has aroused widespread concern, expressed in national legislations and international events such as the 1970 "Earth Day of the United Nations Conference on Human Environment" and most recently the International Year of Sanitation, 2008, to raise awareness and accelerate programmes towards achieving the Millennium Development Goal (MDG) target seven, that deals with environmental sustainability (UN, 2007).

There has been an ongoing debate by stakeholders in the mining sector on measures to mitigate the negative impacts of unregulated artisanal small-scale surface mining and assist the industry to grow in a more sustainable manner (Yakubu 2002). There are also discussions on general concepts of sustainable development and how it can be applied to the small-scale surface mining in Ghana. In sustaining such a sector, it is essential to consider in the context processes involved in the supply, environmental impact and its assessment, health implications and the socio-economic realities of affected communities. HRBA is an approach in curbing environmental rights concerns by unregulated ASM aims to identify and address the root causes of environmental rights violations. And empower rights-holders to claim their rights and support duty-bearers to meet their obligations in the unregulated ASM communities.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the research method that was used to generate data for the study. The chapter entails a description of the research paradigm, research design, the population of the study, sample size and sampling techniques. Pilot-testing, validity and reliability of the research instruments are also presented. Finally, data collection and analysis procedure and ethical considerations are spelt out.

3.1 Paradigm and Philosophical Perspectives of the Study

In making methodological choices, researchers are influenced by their philosophical standpoint and their basic assumptions about social reality, the nature of knowledge and human nature (Kusi, 2012). That is the ontology and epistemology that frame the research or the researcher's frame of reference. Ontology is referred to as one's view of reality and being, and has to do with whether the social world is regarded as something external to social actors or as something that people are in the process of fashioning (Bryman, 2012). It is concerned with claims and assumptions made about the nature of social reality. It further relates to knowledge as to whether objective knowledge exists independent of its social actors, or it is constructed through social interactions.

The term epistemology is used to describe what is real and ontology is used to describe what is believed to be true (Bryman, 2012). Thus, it is the process of knowledge acquisition that relates to what is regarded as appropriate knowledge about the social world of phenomena. It is concerned with the origin, nature, methods and

limits of human knowledge and seeks to answer the question of "how we know what we know". The Knowledge of these orientations - ontology and epistemology – is essential in research because they influence the intentions, goals and philosophical assumptions of the researcher, which are inextricably linked to how the research is conducted. The Western tradition of science identifies two significant philosophies, namely, positivism (scientific) and interpretivism (anti-positivist). Hence, the philosophical approaches underpinning this study are the ideologies of both the interpretivism and the positivists. The nature of the research problem, the purpose, research objectives and research questions, as well as the research methodology, informed the reason for choosing interpretivist-positivist philosophical approach, otherwise referred to as maxim of pragmatism. The reason for selection is not solely laid on methods (qualitative and quantitative approach), but also on the research problem and employs all approaches available to understand the problem.

The pragmatist philosophy underpins this study. Pragmatism arises out of actions, situations and consequences rather than antecedent conditions (Creswell, 2009). In the context of this study, the maxim of pragmatism is merely the combination of the ideas of interpretivism-positivist philosophical approach that requires a proper and accurate statistical methodology that aims at reaching meaningful results with value in real life not just focusing on the statistical significance of the difference between numbers (Creswell, 2009). In other words, pragmatism is concerned with what works when finding solutions to a problem, instead of strict adherence to positions as with positivism and interpretivism.

Pragmatism, therefore, underpins the mixed methods approach to research and uses pluralistic approaches in acquiring knowledge. This research uses the qualitative and quantitative paradigms (mixed method) to explore human rights issues in unregulated

ASM mining and its impact on mining communities in the Mpohor District in the Western Region of Ghana**.** Johnson and Onwuegbuzie (2004) argue that mixed methods research uses a method and philosophy that attempt to fit together the insights provided by qualitative and quantitative research into a workable solution. This view is shared by Tashakkori and Teddlie (2003), Creswell (2003), and Creswell and Plano-Clark (2011). The pragmatic paradigm implies that the overall approach to research is that of mixing data collection procedures and analysis within the research process. It draws on many ideas, including using "what works," using diverse approaches and valuing both objective and subjective knowledge (Cherryholmes, 1992). The philosophical perspective of the pragmatic approach is relevant for this study because the pragmatic approach ensures methodological congruence in the investigation of the research questions and hypotheses, as well as the choice of methods for data collection and analysis.

3.2 Research Approach and Design

Zohrabi (2013) described the research design as the procedures and methods used to gather data. It also describes the instruments used for the collection of data. This study adopted a descriptive survey design. The survey research design enables researchers to get undistorted first-hand information from the research subjects which influence the study. The mixed method approach, according to Burns and Grove (2003), is an approach to inquiry and research that combines quantitative and qualitative methods into one study to provide a broader perspective. Instead of focusing on one type of methodology, mixed methods researchers emphasize the research problem and use all approaches available (quantitative and qualitative) to come to a better understanding of the phenomenon under study.

This design is most appropriate and suitable for the study since the questionnaire and interview are the principal instruments used for the collection of data. The concurrent triangulation design under the mixed-method approach was then adopted as a means of data analysis and presentation. Creswell (2014) posits that researchers who are new to this approach most often think of it as just a combination of quantitative and qualitative data. Though this might be true to some extent, he adds that in the concurrent triangulation mixed-method design, a researcher separately collects quantitative and qualitative data, analyzes them and then compares the results to see if it agrees with each other concerning a given phenomenon (Creswell, 2014). Using the mixed method research approach for a study provides strengths that offset the weakness of both quantitative and qualitative research approaches and provides more comprehensive evidence for studying a research problem than either quantitative or a qualitative research approach alone (Creswell, 2008).

Both quantitative and qualitative research have weaknesses. Quantitative research is weak in understanding the context or setting in which data is collected. Qualitative research may include biases and does not lend itself to statistical analysis and generalization. The mixed method approach, however, offsets these weaknesses by allowing for both exploration and analysis in the same study. It provides results that have a broader perspective of the overall issue or research problem.

3.3 Population

Kusi (2012) defines a population as a group of individuals or people with the same characteristics and in whom the researcher is interested. A population may also be defined as a group of individuals that the researcher generalizes his/her findings. The population consisted of all police officers, EPA officers, traditional leaders, assembly

men and officials of the Mineral Commission within the Mpohor District, who numbered five hundred and seventy (507).

3.4 Sample and Sampling Techniques

A sample is a group of elements, or a single element, from which data are determined. It could also be defined as a subset or collection of some units of the universe or population (Ary, Jacobs & Sorensen 2010). Probability and non-probability sampling procedures were used to select the sample in this study. Simple random sampling technique was used to select the participants for the quantitative aspect of the study. The reason for using simple random sampling was to remove biases. A total of one hundred participants were selected for the study. Purposive sampling was used to select participants for the qualitative aspect of the study. A total of seventeen participants were selected from the total population to partake in this aspect. The technique was chosen for the fact that it allows the researcher to attain enough information about the problem under investigation (Hammond & Wellington, 2013). Yin (2011) pointed out that a sample should be large enough so that the validity and reliability of the data are achieved and proposes a sample of 30% of the population as being reliable.

3.5 Research Instruments

The research instruments used were questionnaires, interview guides and focus group discussions.

3.5.1 Questionnaires

Jack and Norman (2003) opined that a questionnaire is a printed form of questions designed by a researcher, which is given to potential respondents to answer. Data

were collected using questionnaires in the form of a Likert scale and interview guides. A questionnaire was prepared and administered to the respondents. The questionnaire helped the researcher to collect a relatively wide range of information from a large sample within a short time and at a reasonably low cost (Orodho, 2009). According to Jack and Norman (2003), questionnaires are used because they give a broad response to a subject, can provide lots of responses relatively quickly, a right way of asking a large number of people straightforward questions, and not as expensive to carry out as interviews. However, it does take time to collate and analyze the large number of responses that are gained. The respondents were all literate and could appropriately answer the questions in the questionnaire without any interpretation. Questionnaires which contained several questions printed in an absolute order were used. It consisted of two sections; demographic data and Likert scale items sections covered all the research questions.

3.5.2 Interview guide

For triangulation, crosschecking and to compare and contrast to validate findings of data, qualitative data should be fused into research. According to Drew *et al.* (2008), "interview goes beyond the spontaneous exchange of views in everyday conversations, and becomes a careful questioning and listening approach to obtain thoroughly tested knowledge" (p. 83). The structured interview questions were used based on the research questions. A structured interview is defined as a standard set of questions which are used for each participant (Kothari 2008). The interview guide contained all the research questions printed in the correct order and administered to the respondents on scheduled occasions. Interviews are essential because they help a researcher to attain in-depth information about the problem under investigation.

3.6 Pre- Testing

The instrument was pre-tested in Juaboso District in the Western North Region. Johnson and Christiansen (2012) opine it is always acceptable to pre-test a questionnaire before administering to eliminate ambiguities and errors in data collection and to ascertain the validity and reliability of the instruments. It was to find out from respondents how long it took them to complete the questionnaires; whether the instructions and items were clearly understood (Bell, 2005). The feedback received was used to improve on the instrument by making the right corrections and adjustments in the final write-up to increase the level of validity**.**

3.7 Validity and Reliability of the Quantitative Research Instruments

3.7.1 Validity

According to Polland (2005), validity refers to the appropriateness, meaningfulness and of the specific inference researchers make based on the data they collect. Newman (2000) opined that validity refers to the "degree to which an instrument accurately measures what it intended to measure" (p.78.). Validity is that quality of a data-gathering instrument or procedure that enables it to measure what is supposed to measure. It is the degree to which a method, test or research tool measures what is supposed to measure. Kothari (2008) described validity as the degree to which results obtained from the analysis of the data represent the phenomenon under study. Cohen, Manion and Morrisson (2011) opined that there are several methods of ensuring validity and reliability. Out of these approaches, the researcher adopted the face and content validity. Face and content validity were used to ensure the validity of the instrument. The validity of the instruments was ascertained by discussing the questionnaire items with my classmates before passing them onto my supervisors for further assessment and consideration before use. My supervisor assessed the face and

content validity to see whether the instrument had measured what it appears to measure. It assisted the researcher in evaluating the extent to which the items were related to the topic.

3.7.2 Reliability

Braun and Clarke (2006) opined reliability refers to the consistency of the scores obtained. The internal consistency was used as suggested by Cohen et al. (2011). Reliability, on the other hand, is the measure of the degree to which a research instrument consistently measures whatever it measures in repeated trials (Gay, 1992). Reliability is also the accuracy of the results obtained by the use of a research instrument and not about the instrument itself. Reliability of the questionnaire was determined through internal consistency of items where Cronbach's alpha coefficients were computed, and results revealed that coefficients of 0.76 indicated that the instruments were reliable.

3.8 Trustworthiness of Qualitative Instruments

In the interview section, the respondents were allowed to tell their stories, so that captured their experiences regarding environmental rights issues of unregulated mining activities and its impact on the district. The researcher used field notes and personal observations, as well as respondents' validation. To substantiate validation, the recorded interviews were played to respondents for them to confirm the responses. Robson (2002) suggest that the purpose of the research is determining how reliable and valid it is. And states the two approaches to these problems are to simplify the questions for the interviewees and for the researcher to train to be acquainted with potential problems.

3.8.1 Dependability

Lincoln and Guba (1985) cited in Merriam (2009) stressed that credibility is impossible without dependability in qualitative research. According to them, dependability can be recognized through the organization of suitable enquiry decision, review of interviewer bias to defy early closure, the establishment of categorical schemes and exploration of all areas. The research questions were based on information from the literature review. It guaranteed the suitability of questions the participants were asked, and the interview set up helped to develop categories and themes in the findings.

To handle the issue of bias in the study, the researcher required clarification for answers that were not clearly stated during the interview. Also, the duration of the interview was checked to avoid early closure and prevention of participants from providing unreliable data due to boredom as the interview session prolonged.

3.8.2 Credibility

To establish the validity, the data for this study must be credible. Bryman (2001) observed that the establishment of credibility of findings demands that, the research is carried out according to good practice and by submitting it to the social world that studies it for confirmation and that the researcher understands that social order correctly.

In this study, the researcher interrelates with the subjects over not less than two weeks to develop an acquaintance with them. It was done through informal visits to the participants in their homes and offices. It enabled the researcher to develop a relationship with them. In this way, the researcher was able to build trust between

herself and some participants. This trust made it possible for the participants to readily open up for discussions of all sensitive issues that were covered in this study.

3.9 Data Collection Procedure

According to Creswell (2002), the site where research takes place and gaining permission before entering a site is very paramount in research. An introductory letter was obtained from the University of Education, stating the aims and purpose of the study and the need for the participants to give their consent and co-operation. A copy of the letter was taken to each of the categories of the participants. The researcher, with the help of some of the participants, administered the questionnaires. The researcher collected the questionnaires soon after completion. The researcher arranged with the participants to be involved in the qualitative aspect a week before the interview to explain the purpose of the research and the interview to them and also seek their permission to interview them. To have a successful interview, the researcher met the respondents for the interview within six days, 20 minutes was allocated to each interview section. Responses from the respondents were recorded accordingly.

3.9 Data Analysis Procedures

SPSS was used to organize the quantitative data collected from the respondents into manageable data. It was done using simple percentages. The analysis was based on the research questions. Information on the questionnaires was corrected by scrutinizing the data items before coding them. This procedure helped in pinpointing items which were wrongly responded to, mistakes in spelling and empty spaces left by the respondents. The coded information was to enable data entry into the computer to permit statistical analysis. The analysis of data was significant for the reason that it

brought out the features, interpretations to enable description, and the generalization from the study (Creswell, 2014). The interview data were thematically analyzed. In doing so, the raw data were transcribed. Transcription is the process of transforming interview notes and audio recording into texts (Johnson & Christiansen 2012). Thematic analysis is the process that identifies analyses and reports the occurrence of themes in the data collected from the research areas. According to Braun and Clarke (2006), thematic analysis follows six necessary steps.

- Familiarizing with the data through thoroughly reading the transcriptions. This helps the researcher to have in mind what exactly is in the data.
- Generation of initial codes. Putting labels or descriptions on a list of ideas developed from the transcription as already read by the researcher.
- Searching for themes. Related codes are organized under different themes.
- Reviewing the themes. The themes developed are reviewed for their relevance and legitimacy of being called themes.
- Defining and naming themes developed. Defining the overall content of the themes and the message it carries in it before producing a report
- Producing a report. Researcher is already satisfied with the themes developed.

Given the above considerations, the interview of each participant was checked and presented concerning the research questions. In reporting the information collected, some direct quotations were used. Reporting direct statements from research participants is essential because it helps to maintain the originality of data collected

(Cohen *et al.,* 2007). Also, researchers' views based on the informants' answers were given backed up by pieces of literature reviewed.

3.10 Ethical Considerations

Resnik (2015) argues that when most people think of ethics, they think of rules for distinguishing between right and wrong. It is the most common way of defining ethics which are considered as norms for conduct that distinguish between acceptable and unacceptable behaviour. Resnik further suggested that another way of defining ethics focuses on the disciplines that study standards of conduct, such as philosophy, theology, law, psychology or sociology. Ethics in research is typically put in place to regulate the relationship between the researchers and respondents and between the researchers and the area they would like to study (Mcmillan & Schumacher, 2001). As such, informed agreement permits the respondents to indicate to partake or not (Best & Khan, 2001). Participants' confidentiality was ensured by destroying all the questionnaires and transcriptions after the work. Participants' anonymity was ensured by not disclosing any respondents name against the information given.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter deals with the discussion of findings of the research questions, analysis and interpretation of the data obtained from the research participants. The first part of the chapter presents the personal information of the respondents whilst the second part also presents analysis of the research questions.

4.1 Demographic Characteristics of Respondents

Table 4.1 Sex distribution of respondents

Sex	Frequency	Percentage
Male	75	64.1%
Female	42	35.9%
Total	**117**	**100**

Source: Field work (2020)

Table 4.1 revealed that out of the total number of 117 respondents involved in the study, 75 (64.1%) of them were males whilst 42 (35.9%) are females depicting more males were involved in the study than females. The inference drawn here is that more males are involved in unregulated ASMn than females.

Table 4.2. Age of respondents

Age	Frequency	Percentage
20 – 29	18	15.4%
30 – 39	27	23.1%
40– 49	45	38.5%
50-59	12	10.3%
60 and above	15	12.8%
Total	**117**	**100**

Source: Field work (2020)

Table 4.2 revealed that out of the total number of 117 respondents, 18 (15.4%) were between 20 – 29 years, ages between 20 – 39 constituted 27 (33.1%) whilst ages

between 40 – 49 were found to be 45 (38.5%). The Table further revealed that ages between 50 – 59 and those above 60 was disclosed as 12 (10.3%) and 15 (12.8%) respectively. This alludes that majority of the respondents involved in the study were between ages 40-49.

Table 4.3 Occupation of respondents

Occupation	Frequency	Percentage
Student	10	8.5%
Unemployed	9	7.7%
Government	22	18.8%
employee	27	23.1%
Private employee	34	29.1%
Self- employed	15	12.8%
Pensioner		
Total	**117**	**100%**

Source: Field work (2020)

Table 4.3 revealed that 10 (8.5%) of the respondents were students, 9 (7.7%) of the participants were unemployed whilst 22 (18.8%) were government sector employees. The Table again pointed out that 27 (23.1%) or the respondents were private employees, 34 (29.1%) of them were self- employed whereas 15 (12.8%) were pensioners. This illustrates that private employees constituted majority of the research respondents.

Table 4.4 Educational level of respondents

Level	Frequency	Percentage
Basic level	24	20.5%
Secondary level	36	30.8%
Tertiary level	57	48.7%
Total	**117**	**100**

Source: Field work (2020)

Table 4.4 above revealed that 24 (20.5%) of the respondents had completed the basic education, 36 (30.8%) had attained the SHS certificate whilst 57 (48.7%) of them have completed tertiary institutions. This is a clear picture that majority of respondents involved in the study have attained certificate from tertiary institutions.

4.2 Environmental Rights Issues in Unregulated Artisanal Small Scale mining activities

Research question one sought to find out the environmental rights issues in unregulated ASM activities in Mpohor District in the Western Region of Ghana. The respondents' views are presented in Table 4.5 below.

Table 4.5 Environmental Rights Issues in Unregulated Artisanal Small Scale Mining Activities

Statements	A		SA		U		D		SD	
	F	%	F	%	F	%	F	%	F	%
1. Pollution of most of the water bodies	52	44.4	40	34.2	1	0.9	20	17.1	4	3.4
2. Destruction of most farmlands which can lead to famine.	55	47.0	52	44.4	0	0.0	1	0.85	9	7.7
3. The trenches result in all sorts of accidents within the Municipality making it challenging to move freely especially at night	31	26.5	56	47.9	2	1.7	8	6.8	20	17.1
4. Land in areas surrounding illegal mines have been rendered bare and susceptible to increased erosion and loss of viability for agricultural purposes, among other uses.	45	38.5	65	55.6	0	0.0	5	4.3	2	1.7
5. Destruction of vegetation and farmlands drives farmers from sustainable livelihood to rather an alternative income generating businesses.	43	36.8	46	39.3	1	0.9	10	8.5	17	14.5
6. Unregulated ASM removes the vegetation containing important species supporting mans' survival	42	35.9	37	31.6	0	0.0	16	13.7	22	18.8
7. Increased clearing of vegetation for mining adversely alter hydrological regimes whilst important soil organisms have been destroyed depriving the soil of organic matter.	43	36.8	50	42.7	2	1.7	8	6.8	12	10.3

Source: Field work (2020)

Key: A=agree; SA= Strongly Agree; U= Undecided; SD = Strongly Disagree; D=Disagree

Table 4.5 above spelt it out that majority of the respondents 92 (78.6%) either agreed or strongly agreed that unregulated ASM results in the pollution of most of their water bodies, 24 (20.4%) of the participants either disagreed or strongly disagreed to the statement whereas 1 (0.9%) of them was indecisive. This suggests that ASM mining render water bodies unsafe for drinking and for other agricultural purposes in the study area. In support of this, key informant No. 1 articulated:

> *Most of the water bodies within the District are sources of drinking water for most of the villagers but are being polluted as a result of ASM mining making it unsafe for people to drink.*

Another key informant supported:

> *It is an eye sore when one decides to go around places where there are ASM mining activities going on and see how the water bodies are polluted. Especially inhabitants from the neighbouring villages whose source of drinking water is a stream are suffering as a result of this illegal mining.* (Key informant No. 2).

Key informant No. 3 commented:

> *I have witnessed many cases of several health implications especially those living in ASM mining communities.*

Similar result was found by Mensah *et al.* (2015) also focused on the mining activities' impact on the environment in Prestea in the Western Region, Ghana. They noted that that major rivers in the area such as Ankobra and Asesree, which used to serve as the main sources of water for domestic purpose in the surrounding townships, was heavily polluted by mining activities. In the same vein, they found out that the mining operations especially that of the illegal small-scale mining are carried out in the open air without appropriate safeguards and environmental standards, and in the process releases contaminated water into the surrounding environment, thus polluting nearby rivers, soils and vegetation.

In addition, majority of the respondents 107 (91.4%) either agreed or strongly agreed that the action results in the destruction of most of their farmlands which can lead to famine, 10 (8.6%) of the respondents thought differently whilst none of the respondents was indecisive. This means that unregulated ASM has resulted in the destruction of farmlands in the Mpohor District.

To buttress this point, a Key informant No. 4 commented:

The activity involves the removal of the topsoil and that is the portion which is rich in nutrients.

Another Key informant supported:

*Food is scarce at many of the places where there are ASM mining activities because the land no longer supports agriculture and even if so, productivity is low (*Key informant No. 5).

Furthermore, it came into light that most of the respondents 87 (74.4%) either agreed or strongly agreed that the trenches dug results in all sorts of accidents within the District making it challenging to move freely especially at night, 28 (23.9%) of the respondents either disagreed or strongly disagreed to the assertion whereas 2 (1.7%) of the respondents were indecisive. This alludes that the trenches made contributes to all sorts of accidents especially at nights among the study population. In support of this, a Key informant asserted:

> *There is no way an accident cannot occur especially when one is walking at places where ASM mining is going on because the trenches itself is scary (*Key informant No. 1)
>
> Another Key informant purported:
>
> *I have witnessed many cases on how people fall into the trenches dug. Some of the cases even lead to the death of the individual*(Key informant No. 4).

Key informant No. 6 said:

> *There are numerous reported cases on the manner in which the ASM mining trenches injure people in one way or the other.*

Moreover, the Table established that majority of the respondents 110 (94.1%) either agreed or strongly agreed that land in areas surrounding illegal mines has been rendered bare and susceptible to increased erosion and loss of viability for agricultural purposes among other uses, 7 (6.0%) of the respondents either disagreed or strongly disagreed to the statement whilst none of the respondents was indecisive. This means that unregulated ASM mining or galamsey makes a land bare probing it to erosion rendering it unsuitable for agricultural purposes. In support of this, one Community Leader spelt out:

> *ASM mining renders a piece of land bare probing it to all types of water erosion which in turn does not support agricultural activities.*

Another Key informant articulated:

> *The way these ASM miners operate is not in a satisfactory manner. The entire process probes the land to erosion which in turn makes it infertile for the cultivation of crops* (Key informant No. 3).

Similarly, Hilson (2001) found out that Artisanal miners' clear vast expanses of forest, digging trenches and upturning of vegetation which turns land bare and exposes to erosion making it unsuitable for any agricultural purpose.

It was further revealed from the Table that majority of the respondents 89 (76.1%) either agreed or strongly agreed that destruction of vegetation and farmlands drives farmers from sustainable livelihood to rather an alternative income generating businesses, 27 (23.0%) of the respondents thought differently whilst 1 (0.9%) of the respondents was indecisive. This assertion suggests that ASM mining deprives the soil of its fertility which in turn allows farmers in the Mpohor District to divert into

other businesses in order to earn a living. In support of this, a Key informant No. 5 pointed out:

> *Since most of the people living in places where ASM mining goes on are farmers and the action leads to the depletion of the land, the inhabitants' resort to other businesses they seem to be lucrative since their productivity has reduced.*

Another Key informant commented:

> *Most of the farmers with ASM communities work as laborers at those mining sites because their lands are depleted and they have to earn a living*(Key informant No. 2).

Key informant argued that:

> *How can we the farmers survive? Our farmlands have been ravaged by these Chinese which in turn have affected our income which make us migrate to other towns in order to earn a living. A lot of farmers within my area have diverted into other businesses as a result of the mining activities going on in my area*.

This finding connotes with Hayes and Wagner (2008) who concluded that the destruction of vegetation and farmlands by miners affect food security and also drives farmers from sustainable livelihood to rather an alternative income generating businesses.

Additionally, majority of the respondents 79 (67.5%) either agreed or strongly agreed that unregulated mining removes the vegetation containing important species supporting mans' survival, 38 (32.5%) either disagreed or strongly disagreed to the statement whilst none of the respondent was indecisive opining that ASM mining leads to the extinction of soil fauna and other important species that man depends on for his living. To buttress this, Key informant No. 6 purported:

> *The manner in which ASM miners carry out their activities result in the removal of vegetation and soil fauna.*

Another Key informant also commented:

> *Most of the lands used in ASM mining are vegetation which consists of several species that supports man but the action leads to all sorts of vegetation loss which affects man* (Key informant No. 1).

The finding corroborates with Tom-Dery*et al.* (2012) when they investigated effect of illegal small-scale mining operations on vegetation cover of Arid Northern Ghana using Simpson's reciprocal diversity index. They noted that mining significantly affected vegetation cover. In their further analysis, it was found that the Simpsons reciprocal diversity index of tree species at mined area was 8.33 as compared to 10.8 for the un-mined area. For shrub species, the Simpsons reciprocal diversity index was 8.33 for the mined areas while that of the unmined was 10.2. Additionally, low mean density of 2.4 individual trees per 100 m2 and 5.6 individuals per 100 m2 was recorded in the mined and un-mined areas respectively. This implies that, should such activities be left unchecked, the vegetation containing important species supporting mans' survival will go extinct.

Finally, majority of the respondents 93 (79.5%) either agreed or strongly agreed that increased clearing of vegetation for mining adversely alter hydrological regimes whilst important soil organisms have been destroyed depriving the soil of organic matter, 20 (17.1%) of the participants thought differently whereas 2 (1.7%) of them were indecisive. This purports that unregulated ASM activities affect rainfall and depletes the soil. To buttress this, Key informant No. 4 alluded:

> *The rainfall pattern within places where ASM mining goes on has drastically reduced since their activities leads to loss of all vegetation that plays the role of transpiration.*

Another Key informant supported:

> *Activities of ASM miners and the chemicals such as mercury and other oxides make significant microorganisms in the soil to go extinct* (Key informant No. 5).

This finding is similar to that of Mensah *et al.* (2015) who in their study observed that increased clearing of vegetation for mining areas has adversely altered the hydrological regimes and/or patterns in the western region of Ghana whilst important soil organisms have been destroyed and stable soil aggregates disrupted and eventually depriving the soil of organic matter and low levels of macronutrients and soil fertility necessary for plant growth and crop production.

4.3 How Human Rights are violated by Unregulated Artisanal Small Scale Mining.

The primary intent of this research question was to ascertain how human rights are being violated by unregulated artisanal small scale mining in Mpohor District in the Western Region of Ghana. The results are presented in Table 4.7 below.

Table 4.6 How Human Rights are Being Violated by Unregulated Mining

Statements	A		SA		U		D		SD	
	F	%	F	%	F	%	F	%	F	%
1. Engagement of children in labour depriving them of their education.	45	38.5	47	40.2	0	0.0	20	17.1	5	4.3
2. Gender imbalance emerges due to the prevalence of male workers, undermining social cohesion, and spreading problems of psychological or behavioural nature	40	34.2	42	35.9	2	1.7	13	11.1	20	17.1
3. Unregulated ASM denies a person the right to clean water, health, and arable land especially those at the villages	31	26.5	64	54.7	0	0.0	17	14.5	5	4.3
4. Destruction of farmlands without adequate compensations to community members displacing them from their natural residence.	40	34.2	70	59.8	0	0.0	4	3.4	3	2.6
5. Inflation occurs due illegal mining which negatively affect the local population wellbeing	58	49.6	36	30.8	0	0.0	10	8.5	13	11.1
6. Illegal mining results in discrimination of vulnerable groups, disrespect for indigenous populations, and human rights abuse	32	27.4	24	20.5	0	0.0	46	39.3	15	12.8

Source: Researcher's field work (2020)

Key: A=agree; SA= Strongly Agree; U= Undecided; SD = Strongly Disagree; D=Disagree

Majority of the respondents 92 (78.7%) as pointed in Table 4.6 either agreed or strongly agreed that ASM results in the engagement of children in labour depriving them of their education, 25 (21.4%) of the participants either disagreed or strongly disagreed to the statement whilst none of them was indecisive. This suggests that

when illegal mining activities are in communities, children engage themselves in search of "quick money" which deprives them from their education. To buttress this, Key informant No. 2 articulated:

> *Most of our children especially those from low income families engage themselves in ASM mining depriving them of their education.*

Key informant No. 1 supported:

> *Sometimes we have to go to the ASM mining centres to drive children of school age from the place. The activities they engage the children in child labour.*

ASM miners have subjected the children to the need to make money at this tender age. Their monies they give them is not enough but since they are young, any amount they gain makes them ignore their school and engage in their job.

The finding is similar to that of the Reports from the ILO (2005) which indicated that small-scale mining operators principally engage children between ages 10 and 18 years old who are paid minimal daily wages. These children perform all sorts of low-skilled tasks, including digging trenches, carrying loads of gold ore on their heads to washing sites (done largely by girls), washing the ore (done largely by boys), amalgamating the gold using mercury, and selling the product which affects their education.

Majority of the respondents 82 (70.1%) either agreed or strongly agreed that gender imbalance emerges due to the prevalence of male workers, undermining social cohesion, and spreading problems of psychological or behavioral nature, 33 (28.2%) of the respondents either disagreed or strongly disagreed to the assertion whilst 2 (1.7%) of them were indecisive. This suggests that ASM mining results in discrimination among gender concerning work. In support of this, a Key informant No. 7 opined:

> *The influx of miners from different towns into the mining communities breeds gender imbalance because of dominance of male workers which result in emergence of social vices.*

Another Key informant said:

> *I do not know the reason why most women who have health complications in ASM mining communities are as a result of abuse from the men. This leads to all sorts of psychological problems among them.*(Key informant No. 4)

The finding is in consonance with Mancini and Sala (2018) who pointed out that ASM mining activity is likely to attract workers from other regions causing migration flows and a change in the local demographic structure. Consequently, a gender imbalance can emerge due to the prevalence of male workers, undermining social cohesion and spreading problems of psychological or behavioral nature (for instance, alcoholism, drug addiction, prostitution and others).

In addition, the Table revealed that majority of the respondents 95 (81.2%) either agreed or strongly agreed that unregulated ASM denies a person the right to clean water, health, and arable land especially those at the villages, 32 (18.8%) of the respondents either disagreed or strongly disagreed to the statement whilst none of them was indecisive. This suggests that ASM mining results in all sorts of pollution within the Mpohor District which in turn denies the arable population the access to clean water and their health also at risk. To buttress this point, Key informant No. 1 purported:

> *People from ASM mining areas face all sorts of health complications. Most of what I have observed is lead poisoning which has detrimental effects on their health.*

Another Key informant also supported:

> *The situation is very disturbing because some of the chemicals used in the process is harmful to humans and when they flow into rivers that serve as the main source of drinking water into nearby villages, they face all sorts of health issues and that is what we have been recording for some time now.*(Key informant No. 2)

Key informant No. 5 also commented:

> *Some of these ASM miners are very greedy. When they are not monitored, they can delve into your land without your permission and by the time you realise, they have used it up depriving you of your own land.*

This finding is similar to the work of CHRAJ (2006) and Kumah (2006) who found in their separate study found that another human right violation due to mining activities is denying a person's the right to clean water, health and arable land.

Furthermore, majority of the respondents 110 (94.0%) either agreed or strongly agreed that ASM mining leads to the destruction of farmlands without adequate compensations to community members displaying them from their natural residence, 7 (6.0%) of the participants either disagreed or strongly disagreed to the assertion whilst none of the respondents was indecisive. This purports that unregulated ASM activities deprive people from their habitat to other places. In support of this, a Key informant No.5 commented:

> *I have heard of numerous complaints from land owners on the manner in which ASM miners destroy their lands without fulfilling their own part of the agreement when it comes to finances.*

Key informant No. 2 articulated:

> *We have a lot of reports from land owners every time as a result of unregulated ASM miners cheating them.*

Similar result was reported by GNA (2012) who reiterated that in most cases, farmlands are destroyed without adequate compensations to community members, humans are displaced from their natural residence and farm lands are finally destroyed. Additionally, mining companies illegally acquire acres of land without compensation.

Moreover, it was established by the Table that majority of the respondents 94 (80.4%) either agreed or strongly agreed that inflation occurs due unregulated ASM which negatively affect the local population wellbeing, 23 (19.6%) thought differently whereas none of the respondents was indecisive suggesting that ASM mining brings about the increase in goods and products which affect the wellbeing of the local inhabitants. In support of this, Key informant No. 3 said:

> *Prices of goods and materials have increased since the arrival of unregulated ASM mining.*

Key informant No. 6 also articulated:

> *When ASM miners were not in our community, things were not expensive but there was a sharp rise in the prices of goods and services when they arrived.*

Finally, majority of the respondents 61 (52.1%) either disagreed or strongly disagreed that unregulated ASM mining results in discrimination of vulnerable groups and disrespect for indigenous populations, 56 (47.9%) either agreed or strongly disagreed to the statement whereas none of them was indecisive. This suggests that ASM mining does not lead to discrimination of vulnerable groups and disrespect for indigenous populations. To strengthen this assertion, a Key informant No. 5 commented:

> *How can an ASM mining leaders disrespect local indigents? Then they will not be allowed to stay on our land.*

Another Key informant supported:

> *Disrespecting local indigents as a leader of ASM leader cannot make you feel comfortable. When one engages in the act, you can even be beaten by the local residents* (Key informant No. 3).

The finding contradicts that of Mancini and Sala (2018) also observed that violation of human rights during ASM mining can have different forms, including discrimination of vulnerable groups, lack of stakeholder inclusion and respect of indigenous populations, human rights abuse and impacts on cultural and aesthetic resources due to mining activities.

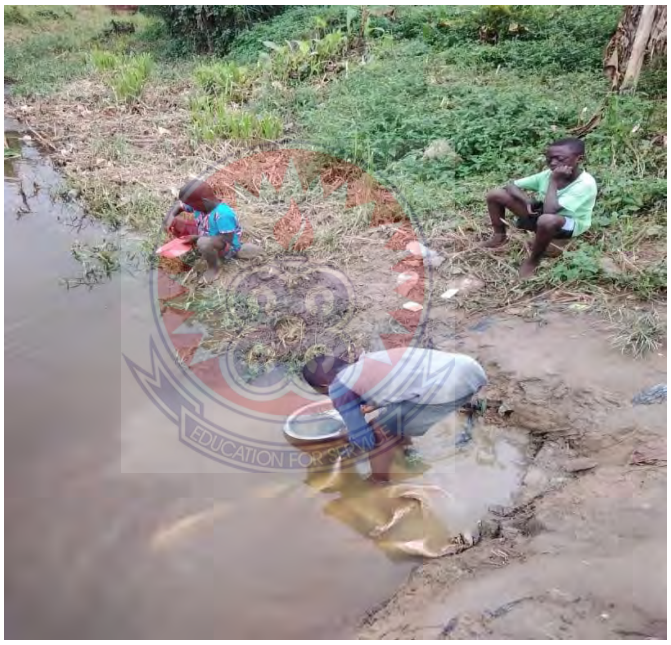

Figure 1: Children engagement in unregulated mining in the Mpohor District

(Picture source: Fieldwork, 2020)

4.3 Employing HRBA to Mitigate Environmental Rights Issues in Unregulated ASM.

Research question three sought to find out the measures that can be taken to mitigate environmental rights issues in unregulated mining using HRBA.

Table 4.8 Employing HRBA to Mitigate Environmental Rights Issues in Unregulated ASM

Statements	A		SA		U		D		SD	
	F	%	F	%	F	%	F	%	F	%
1. The government through the district assemblies should organize an alternative livelihood programmes for farmers in the mining communities whose land have been destroyed by unregulated ASM operations	40	34.2	37	31.6	2	1.7	10	8.5	28	23.9
2. Environmental Protection Agency and human rights organizations should create awareness and sensitize residents of mining communities on their human rights and environmental rights	43	36.7	42	35.9	2	1.7	18	15.4	12	10.3
3. Stakeholders should tackle unregulated ASM by allowing mining communities to participate at every level of the process	51	43.6	39	33.3	0	0.0	13	11.1	14	12.0
4. There should be occasional forum in the affected mining communities where residents can hold district mining committee and local stakeholders accountable for the state of the environment	45	38.4	50	42.7	0	0.0	15	12.8	7	6.0
5. The ministry for land and natural resources should streamline and revamp the regularization of ASM.			60	51.3	0	0.0	5	4.3	12	10.3

Source: Researcher's field work (2020)

Key: A=agree; SA= Strongly Agree; U= Undecided; SD = Strongly Disagree; D=Disagree

Table 4.8 revealed that majority of the respondents 77 (65.8%) either agreed or strongly agreed that alternative livelihood programme should be organized by the government for farmers whose land have been destroyed by activities of unregulated ASM, 38 (32.4%) either disagreed or strongly disagreed to the statement whilst 2 (1.7%) of the respondents were indecisive. This suggests that when alternative livelihood programmes are organised by government for affected farmers, such farmers will not feel discriminated against but would get involved in the fight against the menace. In support of this, Key informant No. 2 asserted:

> *When government introduce alternative livelihood programmes for the affected farmers and set them up well, they will not join the miners in the unregulated mining but assist the communities to curb the menace.*

Key informant No. 5 supported:

> *When government present such initiative, it will be a step in the right direction because these farmers have their own families who depend on their livelihoods for survival and through no fault of theirs rendered redundant.*

The finding is in consistent with Armstrong (2008) who pointed out that in 2005 Newmont initiated a US$6 million private-sector-led alternative livelihoods project called the Livelihood Enhancement and Community Empowerment Program (LEEP) as an attempt to mitigate the loss of livelihoods caused by mining displacement of thousands of poor farmers. The program promoted local production of demand-driven commodities as an alternative to farming.

In addition, majority of the respondents 85 (72.6%) either agreed or strongly agreed that the Environmental Protection Agency (EPA) and human rights organizations in the district should educate and sensitize affected mining communities of their human and environmental rights,30 (25.7%) of the respondents thought differently whilst 2 (1.7%) of the respondents were indecisive. This means that when EPA and human rights organization create awareness and sensitize residents about their human and environmental rights, these members of the communities would be empowered to actively fight for their rights and safe environments. In support of this, Key informant No. 1 purported:

> *We are trying to get human rights activist on board to create awareness on the rights of the indigenous residents so that they can get involved in fighting illegal mining.*

In support of this, Key informant No. 6 asserted:

> *There should be regular sensitization meetings and community education within the communities in Mpohor district to sensitize community members in order to prevent them from engaging in illegal mining activities.*

This finding is a confirmation of a recommendation made by Mineral Commission (2015) ASM Framework report which was compiled through countrywide stakeholders and validation workshop. In the report Media, NGOs and CSOs were empowered to increase advocacy on human rights, promote education and awareness creation of negative environmental impacts of illegal mining and increase advocacy on best mining practices in artisanal and small scale mining areas.

Furthermore, it came into light that most of the respondents 90 (74.4%) either agreed or strongly agreed that Stakeholders should tackle unregulated ASM by permitting mining communities to participate at every level of the process, 27 (23.1%) of the

respondents either disagreed or strongly disagreed to the assertion whereas none of the respondents was indecisive. This alludes that when the indigenous population participate to fight against unregulated ASM, they are empowered and feel a sense of ownership that they could influence the course of change which goes a long way in solving the problem. To strengthen this, Key informant No. 3 opined:

> *There should be genuine participation of the mining communities in Mpohor district in the process of fighting the cancer; this will permit community members to prevent miners from engaging in illegal mining activities.*

Key informant No. 2 also stated that:

> *We bear most of ASM mining effects in the long run so we should be sometimes fight for ourselves when we observe that the depletion is going to a far extent.*

Key informant No. 1 purported:

> *I have witnessed cases of local indigents rioting against ASM mining. I believe they would do more when they are allowed to participate because they bear the effects most.*

This finding supports the findings of Sowa (2005) who pointed out that an autonomous, vibrant and robust civil society in the mining communities should participate in the design, formulation, and implementation of mining policy at all levels: national, regional, and local. The civil society must have the capacity to ensure transparency and monitoring, and to put pressure on all stakeholders to play by the rules. It must work in tandem with other parasternal institutions to play an oversight role in regulating the mining industry.

Moreover, it was established that majority of the respondents 95 (81.4%) either agreed or strongly agreed that there should be occasional forum in the affected mining communities where resident can hold local stakeholders and district mining

committees accountable for the state of the environment, 22 (18.8%) of the respondents either disagreed or strongly disagreed to the statement whilst none of the respondents was indecisive. This means that when local stakeholders and Mining Committee can held accountable for their roles in keeping the environment safe for residents, it will make responsible stakeholders work to arrest the problem. To buttress this, an EPA officer asserted:

> *We have plans in place to meet the mining communities already. When local stakeholders are made accountable, it will reflect at the national level and the fight against galamsey would take the right direction.*

Key informant No. 6 commented:

> *When such forums are organised, stakeholders will be put on their toes to work appropriately and unregulated miners dare not engage in such act.*

This finding is in congruence with Mineral Commission (2015) ASM Framework report which focused on stakeholder consultations, the National Mining Forum and called for active engagement of stakeholders especially, District Assemblies, Traditional Authorities, Small Scale Mining Associations and Security Agencies to support Government in stopping illegal min ing activities in mining communities. Such National and District meetings would invariable enhance accountability of responsible stakeholders in the mining areas.

It was further revealed from the Table that majority of the respondents 100 (85.5%) either agreed or strongly agreed that the Ministry of Mines should streamline and revamp regularization of unregulated ASM, 17 (14.6%) of the respondents thought differently whilst none of the respondents was indecisive. This assertion suggests that when the ministry of mines and natural resources streamline an efficient formalized

and regulated ASM sector, it might decrease the environmental effects related to unregulated mining. To strengthen this assertion, Key informant No. 2 supported:

> *When the mining ministry fast tract the process of acquiring license and ensure effective monitoring and commitment towards regularizing ASM; their activities will be useful as a compliment to small scale mining and alleviate poverty in rural communities.*

Key informant No. 4 also supported:

> *Adequate support from responsible stakeholders and commitment on their part to monitor policies on unregulated ASM will go a long way to save the situation.*

In a similar vein, Akabzaa and Darimani (2001) found that Ghana has built an institutional framework and organizations to support and regulate the mining industry. These are the Ministry of Mines and Energy, the Minerals Commission, and the Forestry Commission and they provide support to ensure optimal exploitation of the country's natural resources. Yet, need to be more effective and committed in their mandate.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter highlights and presents the main findings of the study, the overall study conclusions and implications of the study findings. It also provides some recommendations based on the findings from the study.

5.1 Summary

The study sought to examine environmental rights issues in unregulated ASM mining and its impact on mining communities in the Mpohor District of the Western Region of Ghana. The study was guided by the following questions:

What are the environmental rights issues in unregulated small scale mining activities in mining communities in the Mpohor District of the Western Region of Ghana?

How are human rights being violated by unregulated small scale mining in mining communities in the Mpohor District of the Western Region of Ghana?

How can HRBA be employed in mitigating environmental rights issues in unregulated artisanal small scale mining?

A number of significant findings was revealed from the study. Concerning environmental rights issues in unregulated ASM mining activities, 78% of the respondents agreed or strongly agreed that unregulated mining activities result in the pollution of most of the water bodies within the Districts, 91% said that illegal mining activities leads to destruction of most of their farmlands which can lead to famine. It was also found that unregulated ASM removes the vegetation containing important species supporting mans' survival. The study further revealed that the trenches made results in all sorts of accidents within the district making it challenging to move freely

especially at night whereas the land in areas surrounding unregulated ASM mines has been rendered bare making it susceptible to increased erosion and loss of viability for agricultural purposes, among other uses. This was agreed upon by 94% of the respondents.

It was also found that the activity results in the destruction of vegetation and farmlands which drives farmers from sustainable livelihood to rather an alternative income generating businesses, the removal of vegetation containing important species supporting mans' survival whereas the increased clearing of vegetation for mining adversely alter hydrological regimes making important soil organisms have being destroyed depriving the soil of organic matter. This was agreed upon by 79.5% of the respondents

On the impact of environmental rights, it was settled by 78.7% of the respondents that, ASM results in the engagement of children within the District in labour depriving them of their education, gender imbalance also emerges due to the prevalence of male workers, undermining social cohesion, and spreading problems of psychological or behavioural nature. In addition it was highlighted by 65% of the respondents that unregulated ASM results in discrimination of vulnerable groups, disrespect for indigenous populations, and human rights abuse and also the unregulated mining denies a person the right to clean water, health, and arable land especially those at the villages, it also results in destruction of farmlands without adequate compensations to community members displacing them from their natural residence, inflation occurring which negatively affect the wellbeing of the local population.

Finally, on employing HRBA in mitigating environmental rights issues in unregulated mining, 66% of the respondent identified that the government through the district

assemblies should organize an alternative livelihood programmes for farmers in the mining communities whose land have been destroyed by unregulated ASM operations whiles Environmental Protection Agency and human rights organizations should create awareness and sensitize residents of mining communities on their human rights and environmental rights. This can be done in community and social gathering such church, durbar or through the use of community information service and other radio stations. It was further pinpointed by 76.9% of the respondents that Stakeholders should tackle unregulated ASM by allowing mining communities to participate at every level of the process. More importantly, there should be occasional forum in the affected mining communities where residents can hold district mining committee and local stakeholders accountable for the state of the environment.

Conclusively, it was established that the ministry for land and natural resources should streamline and revamp the regularization of ASM. This was suggested by 87.2% of the respondents.

5.2 Conclusions

This study attempted investigating environmental rights issues in unregulated small scale mining and its impact on the mining communities in the Mpohor District in the Western Region. The extraction of minerals is of numerous benefits to a nation. In the same vein, extracting minerals in an unlawful manner such as ASM results in various tremendous threats to the environment ranging from depriving it of its nutrients and living it bare probing it to erosion. Unregulated ASM mining activities has led to destruction of most of farmlands and pollution of most of the water bodies in the Mpohor District. Due to the rampant activities of unregulated ASM mining, large forest areas are now cleared and excavated in search of minerals. This has led to the loss of green vegetation and the loss of flora and fauna in the place. Land in areas

surrounding ASM mines have been depleted and rendered bare. Unregulated ASM mining activities have several health implications especially for those living in ASM mining communities. The way these ASM miners operate is not in a satisfactory manner they leave mining trenches uncovered and this sometimes injure people.

Children especially those from low income families engage themselves in ASM mining depriving them of their education. People from ASM mining areas face all sorts of health complications. Besides gender imbalance surfacing owing to the prevalence of male workers, and spreading problems of psychological or behavioural nature in the form of social vices. There were also denial of peoples right to clean water, health, and arable land especially those at the villages.

The most sustainable approach in solving unregulated ASM is the use of HRBA. This unlawful activity results in the abuse of all sorts of environmental rights within the indigenous residents so strategies such as the introduction of ALP to affected farmers and the use of participatory approach by responsible stakeholders and local residents' should be employed to arrest the situation. Also ensuring accountability of stakeholder was a step in the right direction in curbing the menace.

5.3 Recommendations

The following recommendations were made from the findings of the study:

The government of Ghana should first provide education. This will create their awareness of the possible effects of unregulated ASM mining on their health, environment, livelihood and socio-economic effects it has on them now and as years pass by.

Stringent measures should be enactedand and enforced to prevent landowners who still leased lands out. The government can establishment small organizations in these

areas to notify duty bearers of any landowner leasing a land out so that they can buy and invest it into a grand agricultural produce. In addition, creation of protected areas could be necessary, where areas only designated for agricultural purpose are available to ensure the continuity of cash and food crop production which not only ensures the livelihood of the people but brings revenue to the country. In the same way, these protected areas will ensure sustainability of biodiversity.

In as much as we acknowledge the negative impact of unregulated ASM activities in Mpohor district its benefits should not be ignored. The government can develop and invest in it turning them to be legal with its laws and policies and putting measures that will reduce the environmental hazards in the communities. Also, employment opportunities should be provided with adequate access to credit facilities /money for survival. ASM miners in the Mpohor District should adhere to the rules, norms and principles laid down by the Ministry of Mines in Ghana. The local authorities in the Mpohor District should monitor closely the activities of unregulated ASM miners within the District.

5.4 Suggestions for Further Research

The following areas can be investigated into:

1. One can examine the effects of ASM mining on the socio-economic development of local indigents in the Mpohor District.
2. In addition, one can investigate into how ASM mining influences immoral practices in the Mpohor District.
3. Finally, a study can be conducted on how unregulated ASM mining affects the economy of Ghana.

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APPENDIX A

QUESTIONNAIRE FOR RESPONDENTS

UNIVERSITY OF EDUCATION, WINNEBA

I am a post graduate student of the University of Education, Winneba. As part of the academic requirement, I am conducting a research on environmental rights issues in unregulated ASM mining and its impact on mining communities in the Mpohor District in the Western Region of Ghana. I assure you that any information provided shall be used sorely for academic purposes, confidentiality is assured.

(Please tick and specify when appropriate)

Section A: Background Characteristics

1. Gender: (a) Male [ ] (b) Female [ ]

2. Age: (a) Less than 30 years [ ] (b) 30-39 years [ ] (c) 40-49 years [ ] (d) 50 & above [ ]

3. Occupation: ……..

4. Educational Qualification (a) Basic level [ ] (b) Secondary level [ ] (c) Tertiary level [ ] (d) others……..

SECTION B: Environmental rights issues in unregulated Artisanal small scale mining activities in Mpohor District in the Western Region of Ghana.

In your opinion what are the environmental rights issues in unregulated artisanal small scale mining activities in Mpohor District in the Western Region of Ghana.Please indicate extent to which you agree or disagree. Kindly tick **[**√**]** the most appropriate

Statements	Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1. Pollution of most of the water bodies				
2. Destruction of most farmlands which can lead to famine.				
3. The trenches result in all sorts of accidents within the District making it challenging to move freely especially at night				
4. Land in areas surrounding unregulated mines have been rendered bare and susceptible to increased erosion and loss of viability for agricultural purposes, among other uses.				
5. Destruction of vegetation and farmlands drives farmers from sustainable livelihood to rather an alternative income generating businesses.				
6. UnregulatedASM removes the vegetation containing important species supporting mans' survival				
7. Increased clearing of vegetation for mining adversely alter hydrological regimes whilst important soil organisms have been destroyed depriving the soil of organic matter.				

SECTION C: What are impacts of environmental rights issues of unregulated ASM in mining communities.

In your opinion what are the impacts of environmental rights issues of unregulated ASM on mining communities. Please indicate extent to which you agree or disagree. Kindly tick **[**√**]** the most appropriate

Statements	Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1. Engagement of children in labour depriving them of their education.				
2. Gender imbalance emerges due to the prevalence of male workers, undermining social cohesion, and spreading problems of psychological or behavioral nature				
3. Unregulated mining denies a person the right to clean water, health, and arable land especially those at the villages				
4. Destruction of farmlands without adequate compensations to community members displacing them from their natural residence.				
5. Inflation occurs due unregulated ASM which negatively affect the local population wellbeing				
6. Unregulated ASM results in discrimination of vulnerable groups, disrespect for indigenous populations, and human rights abuse				

SECTION D: How can environmental rights issues in unregulated ASM be mitigated using HRBA

In your opinion, how environmental rights issues in unregulated ASM be mitigated using HRBA. Please indicate extent to which you agree or disagree. Kindly tick **[**√**]** the most appropriate

Statements	Strongly Agree 1	Agree 2	Disagree 3	Strongly disagree 4
1. The government through the district assemblies should organize an alternative livelihood programmes for farmers in the mining communities whose land have been destroyed by unregulated ASM				
2. Environmental Protection Agency and human rights organizations should create awareness and sensitize residents of mining communities on their human rights and environmental rights				
3. Stakeholders should tackle unregulated ASM by allowing mining communities to participate at every level of the process				
4. There should be occasional forum in the affected mining communities where residents can hold district mining committee and local stakeholders accountable for the state of the environment				
5. The ministry for land and natural resources should streamline and revamp the regularization of ASM.				

APPENDIX B

INTERVIEW GUIDE

ENVIRONMENTAL RIGHTS ISSUES IN UNREGULATED ARTISANAL SMALL SCALE MINING AND ITS IMPACT ON THE MINING COMMUNITIES IN THE MPOHOR DISTRICT

Category of respondent: …….

Interviewee code number: ……

Place of interview: ……

Duration of interview: …….

Section A: Environmental rights issues in unregulated small scale mining.

a. What is Environment?

b. What is your understanding of environmental rights issues?

c. What are the challenges to the realization environmental rights?

Section B: Impacts of environmental rights issues in unregulated small scale mining.

a. Do unregulated ASM miners engage children in mining?

b. unregulated ASM denies a person the right to clean water, health, and arable lands. What is your opinion of this issue?

c. How are the activities of unregulated small scale miners affecting your community in general?

Section C: Ways to mitigate the environmental rights issues in unregulated ASM using HRBA.

a. Are alternative livelihood programmes available in the district?
b. If yes, which vulnerable groups do you think deserve to benefit from the program?
c. Should there be education and sensitization on human and environmental rights in the mining committees, if yes how?
d. In your own view how can we use HRBA to mitigate the environmental rights issues in unregulated ASM communities like yours?