

AWUDU IDDRISS ALI

ASSESSING THE VIEWS OF RURAL PEOPLE ON THE IMPACT OF ILLEGAL MINING ON THEIR ECOLOGICAL RESOURCES

A study conducted in the Bekwai Municipality in
the Ashanti Region of Ghana

Master's thesis in NATURAL RESOURCES MANAGEMENT-
GEOGRAPHY OPTION

Supervisor: DR. ELIZABETH BARRON (ASSOCIATE PROFESSOR)

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Abstract

Ghana has over the years experienced a boom in galamsey with excessive damage to the ecological resources such as the forest, agricultural land and water bodies. Galamsey in Ghana currently is like a large-scale mining operation, due to the use of heavy and sophisticated equipment and machines conducted without licenses. The Ghana government has over the years resulted in banning galamsey in order to protect the environment and the resources from further destruction. However, the economic nature of galamsey, serving as a livelihood option and employment hub for millions of Ghanaians mostly in the rural areas, makes it difficult to control. The fight against galamsey in Ghana has been a very difficult and complicated one due to the interference of power from politicians, Chiefs, government officials, and other powerful individuals in the society. The uneven distribution of mining licenses between the rich and the poor local people, where the rich and powerful are granted licenses to mine whereas the poor are locked in bureaucratic processes, has been a source of conflict in galamsey communities. The study was conducted in the Bekwai Municipal Assembly in the Ashanti Region of Ghana. A semi-structured questionnaire with three (3) sections was filled by Twenty five (25) respondents made of farmers, galamsey workers and market women. Using the 5-point Likert scale, respondents were made to select their level of agreement with statements about the impact of galamsey on their ecological resources and livelihood. Respondents expressed their views and opinions through follow up interviews. The study revealed that galamsey and its activities have negatively impacted their forest, agriculture and water bodies. It also revealed that the majority of the rural people do not agree with the government's decision to ban galamsey despite the negative impact on the resources. Using the environmental conflict theory, the study looked at the various causes of conflicts and how the people's experiences and views about galamsey lead to conflicts in the community. The lack of trust between the people and the government, power relations, ineffective communication, and marginalization of the rural people in decision making was found to be some of the causes of conflicts in the study community. The study recommended the government to educate and have a dialogue with rural people in order to understand their views about galamsey, and to create alternative livelihood options with the recommendations of the people, depoliticize issues of galamsey and make licenses easily accessible to the local galamsey miners.

Sammendrag

Ghana har gjennom årene opplevd en boom i galamsey med overdreven skade på de økologiske ressursene som skogen, jordbruksland og vannmasser. Galamsey i Ghana er for tiden som en storstilt gruvedrift, på grunn av bruken av tungt og sofistikert utstyr og maskiner utført uten lisenser. Regjeringen i Ghana har gjennom årene resultatert i å forby galamsey for å beskytte miljøet og ressursene mot ytterligere ødeleggelse. Den økonomiske karakteren til galamsey, som fungerer som et levebrødsalternativ og sysselsettingscenter for millioner av ghanesere, hovedsakelig på landsbygda, gjør det vanskelig å kontrollere. Kampen mot galamsey i Ghana har vært veldig vanskelig og komplisert på grunn av maktinnblanding fra politikere, høvdinge, myndighetspersoner og andre mektige individer i samfunnet. Den ujevne fordelingen av gruelisenser mellom de rike og de fattige lokalbefolkningen, der de rike og mektige får lisenser til å utvinne mens de fattige er låst i byråkratiske prosesser, har vært en kilde til konflikt i galamsey-samfunnene. Studien ble utført i Bekwai kommunale forsamling i Ashanti-regionen i Ghana. Et semistrukturert spørreskjema med tre (3) seksjoner ble fylt ut av tjuéfem (25) respondenter bestående av bønder, galamsey-arbeidere og markedskvinner. Ved å bruke 5-punkts Likert-skalaen, ble respondentene bedt om å velge enighetsnivå med utsagn om virkningen av galamsey på deres økologiske ressurser og levebrød. Respondentene ga uttrykk for sine synspunkter og meninger gjennom oppfølgingsintervjuer. Studien avdekket at galamsey og dens aktiviteter har negativt påvirket deres skog, landbruk og vannforekomster. Den avslørte også at flertallet av bygdefolket ikke er enige i regjeringens beslutning om å forby galamsey til tross for den negative innvirkningen på ressursene. Ved å bruke miljøkonfliktteorien så studien på de ulike årsakene til konflikter og hvordan folks erfaringer og syn på galamsey fører til konflikter i samfunnet. Mangelen på tillit mellom folket og regjeringen, maktforhold, ineffektiv kommunikasjon og marginalisering av bygdefolket i beslutningstaking ble funnet å være noen av årsakene til konflikter i studiemiljøet. Studien anbefalte regjeringen å utdanne og ha en dialog med folk på landsbygda for å forstå deres syn på Galamsey, og å skape alternative levebrødsalternativer med folks anbefalinger, avpolitiserer spørsmål om Galamsey og gjøre lisenser lett tilgjengelige for de lokale Galamsey-gruvearbeiderne.

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Dedication

This thesis is first and foremost dedicated to Allah almighty for giving me the strength, opportunity, good health and long life to get to this level. Alhamdulillah.

Secondly, I dedicate this work to my dearest sister Ayisha, who died during the covid season. May Allah almighty forgive and grant her Jannah.

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List of Abbreviations

| | |
|-------|---|
| ASM | Artisanal small scale mining |
| GJA | Ghana Journalist Association |
| GWCL | Ghana Water Company Limited |
| IMCIM | Inter-Ministerial Committee on Illegal Mining |
| LSM | Large Scale Mining |
| LPG | Liquefied Petroleum Gas |
| NDC | New Democratic Congress |
| NGO | Non-Governmental Organization |
| NPP | New Patriotic Party |
| NSD | Norwegian Center for Research Data |
| NTFPs | Non Timber Forest Products |
| PNDC | Provisional National Defense Council |
| SPSS | Statistical package for Social Sciences |

1 Introduction

1.1 Introduction and Background

Ghana, located in the tropical zone, has had its original forest cover of 8.2 million hectares from the 19th century reduced to only an estimated 1.6 million hectares currently (Boadi et al, 2016). The deforestation rate in Ghana is about 2.5% of the total land area annually leading to a yearly loss of about 135,000 ha of forest (FAO, 2016). While forest conversion in Ghana was essentially agriculture driven, the boom in illegal small-scale mining (galamsey) operations is fast becoming one of the major factors contributing to the rapid decline of forest resources in Ghana (Boadi et al, 2016). Galamsey is the name given to the unregistered form of Artisanal small-scale mining (ASM) in Ghana. ASM is distinctive from Large Scale Mining (LSM) which is licensed and regulated by the government.

ASM is very prevalent in many parts of Latin America and Africa. It is usually thought of as an informal activity that involves rudimentary techniques of mineral extraction, low capital investment, hazardous working conditions, and extensive manual labor (Teschner 2012, Hilson 2017). In simple terms, ASM is the use of simple tools to extract minerals such as gold and other natural resources from the earth. The World Health Organization describes the activity as poverty-driven, carried out in the most remote and rural parts of a country by largely uneducated masses with no alternative form of employment (WHO, 2016). In Ghana, about 85% of ASM activities are not registered and thus fall within the description of galamsey (Teschner, 2012).

Galamsey is done mostly in forest reserves, farmlands, and recently in Ghana, on rivers and other water bodies. The majority of the forest and reserves, agricultural lands, and water bodies in Ghana are found in the rural communities. The water bodies serve as drinking water for both humans and animals, watering farm crops and fishing in most rural communities. The forests and agricultural land are very important resource for the rural people. Most rural communities have built their lives and livelihood around these resources because they are mostly farmers who engage in both subsistence and commercial farming to feed their families and provide the necessities of life (Abugre et al, 2021).

1.2 Problem statement

Galamsey has been a major issue of concern in Ghana for the past decade. It destroys biodiversity and the landscape, pollutes agricultural lands, and increases the rate of deforestation. For instance, 2.5 km², about 4.4% of the total area of the Offinso shelterbelt forest reserve in the Ashanti region was degraded by illegal mining between 2009-2014 (Boadi et al, 2016). The introduction of heavy machinery by the Chinese has resulted in major increases in environmental damage in comparison to the previously used pickaxe and shovel (Hilson and Osei, 2014). Several studies have assessed the consequences of galamsey on the environment, land access, and the motivation of small-scale miners in Ghana (Aryee, Ntibery, and Atorkui 2003; Banchirigah 2008; Hilson 2002; Hilson and Potter 2005). According to Aryee et al (2003), the negative impacts affect the local people who live near these resources and directly depend on them, and inevitably affect and destroy the ecosystems. The loss of agricultural land, and farms, and the pollution of water bodies have made life difficult for the local people who depend on these natural resources for their livelihood (Owusu et al, 2019). The activities of ASM in Ghana have caused serious environmental challenges such as mercury and water pollution, land degradation, deforestation, as well as unsafe mining practices, conflicts, social and human rights abuses' (Eduful et al, 2020).

Despite the ecological destruction galamsey is causing the environment in Ghana, it is a source of employment and livelihood for thousands of Ghanaians, especially younger people in rural communities (Hilson, 2012; Hilson and Osei, 2014). The industry is said to be over 2,000 years old and the ASM industry produces 30% of Ghana's total gold output (Arkorful et. al, 2019). It also generates income for many people and is seen as having the potential to facilitate sustainable rural livelihoods and poverty reduction (Labonne, 2014). The growth of galamsey in Ghana is partly associated with the unemployment situation in the country and the increment in the prices of gold in the world market (Banchirigah 2008; Hilson and Osei 2014). Most of the youth migrate to the rural communities due to the high unemployment rate in the cities to engage in galamsey to fend for themselves and their families.

The government of Ghana in its effort to protect the environment and the ecological resources of the country has over the years resulted in a complete ban on the activity (three times since 2006), by arresting and prosecuting offenders. The government's reason for the ban was to protect the

natural resource and environment and to come out with sustainable and responsible ways of regularizing the activities of galamsey (Tuokuu et al, 2020). The most common theory in Ghana is that ASM is ‘bad’ for society and the people involved in it, especially the youth miners are ‘criminals’ who have little or no regard for the dangers posed to the natural environment (Hilson, 2017; Tuokuu et al, 2020). This theory coupled with the negative environmental impacts of ASM activities has inspired negative perceptions within popular and policymaking circles (Hilson and Maconachie, 2020). The government of Ghana has been using the military to arrest and prosecute offenders since 2006, 2013, and recently in 2017 during the ban. These measures have been described by many as harsh and insensitive. In all these instances, the bans were lifted and the activity resumed with far greater destruction to the environment. This approach by the government resulted in many conflicts and was met with a series of pushbacks and rejection by the ASM industry who felt the ban was causing more harm than good. Their rejection of the policy was based on the fact that galamsey was a source of livelihood for most people especially the youth and the rural communities in the country. Without effective alternative livelihood programs and employment opportunities, placing a ban on the activity fueled the already existing conflicts surrounding the ASM industry and other stakeholders. Some of the conflicts involved farmers and galamsey operators, rural people and foreign miners, ASM and LSM industries, Chiefs of communities and rural people, other environmental Non-Governmental Organizations (NGOs) and the ASM industries.

Most notable amongst the conflicts are those between the rural people in the ASM industry and the government. The government has, over the years justified its strict approach towards the fight against galamsey by stating that illegal miners do not know the impact of galamsey on the environment and do not care about the destruction it causes. In this narrative, the galamseyers are portrayed as uneducated, selfish, and greedy people who only engage in that activity for selfish reasons. It is with this complex history as a background that this research was developed. This research seeks to understand the views of the rural people about galamsey and its impact on their ecological resources. It also seeks to understand their views on the government's approach to solving issues of galamsey, using complete bans, and how it affects rural livelihoods and eventually leads to conflicts in the community. For this study, the ecological resources used will be restricted to the forest, agricultural lands, and water bodies.

1.3 Research Questions

Research questions are the foundation for a study. The questions pave the way for new research to try to answer those questions. ‘Interest in a particular topic usually begins the research process, but it is the familiarity with the subject that helps define an appropriate research question for a study’ (Brian 2016).

This study, therefore, addresses the following questions;

1. What are the perceptions of rural people about impacts of galamsey and the sources of conflicts between the people and the government?
2. What are the views and experiences of rural people about the ban on galamsey, and how has the ban affected their livelihood and the ecological resources in the community?
3. What recommendations could be made for future management planning regarding galamsey?

1.4 objectives

The objectives of the study are therefore

- i. To understand the perceptions of rural people about impacts of galamsey and the sources of conflicts between the people and the government.
- ii. To assess the views and experiences of rural people on the banning of galamsey and its impact on their livelihood and the ecological resources.
- iii. To provide practical recommendations that can be used by the municipal governments in the future resource management planning regarding galamsey

1.5 Importance of study

The government of Ghana, after months of battling with galamsey, recently announced its intentions to form an all-inclusive stakeholder forum, to come up with initiatives and policies that will help in the fight against galamsey. The rural people, who mostly depend on the resources for their livelihood, owners of the land and its custodians, and the gatekeepers to

illegal miners, are a very important stakeholder group. Their support and acceptance of government policies and initiatives make it successful, likewise their rejection can doom a policy. It is important, therefore, to have a document that helps in the understanding of the people's views and opinions concerning issues that affect their livelihood. Understanding issues from their perspectives lead to formulating policies and implementation strategies that will best suit the people and lead to the acceptance of such policies. This research is hoped to serve as an important document for understanding the views of rural people about galamsey and the sources of conflicts between the people and the government. It will also serve as a document for understanding the repercussions of the ban of galamsey on local livelihood and the subsequent factors that shape the minds of the local people in deciding on galamsey. It is hoped to thus serve as a working document to address galamsey conflicts in rural communities and rural livelihood problems.

1.6 Organization of thesis

This thesis is organized and presented in six (6) Chapters. Chapter one introduces the topic and provides background for the study, research questions, and the objectives. It also elaborates on the problem statement and gives the justification and importance of the study. In chapter two (2), I review the existing literature on illegal mining. The literature review gives background and context for the study. In the review, I emphasize the development of illegal mining and the discourses surrounding it in Ghana. I discuss the environmental conflict theory as the one which provides a conceptual framework through which to interpret the data. Chapter (3) three describes the research design of this thesis and the methods of data collection and analysis. It also contains the study area description, the economic activity of the study area and its topography, the selection criteria for study participants, sampling methods, and the processes of fieldwork. The chapter ends with the ethical considerations of the study. Chapter four (4) presents the findings. The results are categorized and structured in two parts. Part 1 documents the views of the respondents about the impact of galamsey on their ecological resources. Part 2 documents their view on the ban on galamsey and its impact on their livelihood and ecological resources. Chapter five (5) presents the discussion of the results of the study. Chapter (6) presents the summary and conclusion of the study

2 Literature review

2.1 Introduction

This chapter reviews the literature on the study topic. In this chapter, I review the theoretical framework and issues surrounding illegal mining both in Ghana and other countries. The chapter includes literature on the livelihoods of local people and the detailed discourses on illegal mining in Ghana and its ban, environmental conflicts as a theory base, and land-use changes in Ghana.

2.2 Large and Small-scale mining in Ghana

Ghana, formerly known as Gold Coast, is the leading gold producer in Africa and it's currently ranked the eighth gold producing country in the world (Andrews et al, 2020: World Gold Council, 2019). In 1989, the government of Ghana introduced and implemented policies and laws to create a regulatory framework for the mining industry (Akabzaa, 2000). Since the inception and implementation of the framework, the mining sector in Ghana has made significant contributions to the development of the country by generating foreign income and revenue (Aryee, 2001). Many international mineral companies are operating and exporting gold from Ghana. Amongst them are Gold Fields Ghana Limited, AngloGold Ashanti, Newmont Ghana Limited, and Golden Star Resources. The mining companies provide both direct and indirect employment opportunities for community members (Boateng et al, 2014). These companies register and obtain concessions from the government to mine on large scales of land. They use highly mechanized equipment and usually employ high skilled labor (Amponsah et al, 2011). This type of mining is referred to as Large Scale Mining (LSM).

Existing side by side with the LSM is the ASM industry. This is the type of mining that is mostly done using simple tools. The ASM industry comprises both registered and unregistered miners. Teschner (2012) differentiates them as follows, 'the legally registered mines are referred to as small scale mines whereas the unregistered or illegal mines are referred to as "galamsey". Galamseyers, as they are often referred to in Ghana, often "work without a license, have no concessions of their own and operate uncontrollably within the concessions of large-scale mining companies or in areas prohibited for mining such as forest reserves" (Aryee et al, 2003). Uncontrollably in the sense that, their activities are not regulated by the mining commission, nor do they follow the rules regarding the small-scale mining operations. Such operators do not have any standards as to where to mine or not. They therefore in some cases mine in forests that are

either designated protected areas or on people's farms without permission. It is obvious from the above explanations that there is a clear distinction between LSM and ASM activities in Ghana. Most of the damage to the ecological resources such as the forest, agricultural lands, and most water bodies are a result of the activities of ASM.

2.3 Background and status of Galamsey in Ghana

Small-scale mining is very prevalent in most parts of Latin America and Africa (Hilson 2017). It is usually thought of as an informal poverty-driven activity that involves rudimentary techniques of mineral extraction, low capital investment, hazardous working conditions, and extensive manual labor (Teschner 2012, Hilson 2017). In most African countries with natural resources such as Mozambique, Tanzania, South Africa, and Cote d'Ivoire, illegal mining has been practiced for many years. In Ghana particularly, the industry has experienced unprecedented and chaotic growth in recent years, bringing about many problems that the authorities have struggled to address (Amankwah and Anim-Sackey, 2003; Hilson and Potter, 2005). In Ghana, illegal mining is a very active and well-rooted sector employing hundreds of thousands of people in the country. Estimates suggest up to 1 million people engage in ASM, with 85% of them operating illegally (Hilson & Osei, 2014). The galamsey business in Ghana experienced a significant change and spike with the introduction and use of heavy machinery such as 'Changfan' machines and excavators, introduced into the country by the Chinese. The 'Changfan' machine is a machine used to mine gold on water bodies in Ghana. It consists of a platform that houses all the equipment needed to process the gold from the ore. The machine digs deep within the river bed and transports the ore containing the gold to the platform. The gold is washed and mixed with chemicals, and the residues containing all the poisonous chemicals are washed back into the river. This process is repeated several times until enough gold has been accumulated for the day. They move the platforms to different locations on the river to continue with the illegal activity.

With the introduction of the 'Changfan' machines, illegal miners have now focused their operations on rivers and other water bodies. Their activities on the water bodies result in the pollution and poisoning of the water, which in most cases serves as drinking water for many rural communities and beyond. The poisoning is a result of the use of mercury and cyanide in the mining process. The main problem attributed to galamsey in Ghana is mercury pollution of water bodies and the destruction of forests and agricultural land (Amankwah, 2013). In addition to that, they use cyanide in their gold mining activities. The presence of cyanide ions in food and

their use in the industry is dangerous to people's health and safety. Compounds containing cyanide ions are known to be rapidly acting poisons, which mainly interfere with the process of cellular respiration resulting in several ailments, illnesses, and even death (Jaszczak et al, 2017). The loss of agricultural land, farms, and the pollution of water bodies have made life difficult for the local people who depend on these natural resources for their livelihood (Owusu et al, 2019). As pointed out by (Aryee et al,2003), these negative impacts affect the local people who live near these resources and directly depend on them, and also inevitably affect and destroy the ecosystems. It affects the production of crops such as cocoa and oil palm. Figures 1 and 2 below show the state of Ghana's forest before and after the advent of galamsey. Figure 3 shows a picture of a Changfan machine seized by the military during an operation halt on Ghana's rivers.



Figure1. A picture showing the rich forest resource of Ghana before galamsey. Source: Forestry Commission of Ghana archives, 2010



Figure 2: Picture showing the impact of galamsey on Ghana’s forest Source: Ministry of land and natural resources (2021)





Figure 3: Seized Changfan machines on one of Ghana's rivers Source: MOFA, 2020

2.4 Structure of Illegal mining operations

Small-scale mining is well organized in terms of hierarchy and has some complex systems of operation. They employ many workers with designated roles for each of them. The setup may differ from camp to camp and from country to country, depending on the type of tools and the type of mining procedure adopted. An example is the Geita District camp in Tanzania, where they have workforces comprising 'pit owners', mineworkers, and buyers (Lange 2006). Such setups can also be found in Ghana with workers such as washers, diggers, bookkeepers, and accountants (Banchirigah 2008). Hilson (2012) identifies two (2) types of illegal mining in Sub-Saharan Africa and categorizes them as follows;

1. Individual Pit owners: These are individuals who are responsible for the entire operations of the camp and are owners of the pit. They employ workers such as diggers, washers, excavators, haulers, and accountants. They pay them a daily wage in exchange for their labor at the camp. These individuals pay the workers their daily wages no matter the outcome of the operation or how much gold was mined. They alone take up the risk and the benefits that come with the operation.

2. The second type is where a group of people, two or three, come together to buy land and conduct the activity. The risks and profits are shared amongst them. The pit owner usually takes about 50% of the profits and acts as the leader and the rest is shared amongst the other parties involved. In this case, the risk is shared amongst many people and its impact is not too heavy on one person, as in the case of the individual mentioned above. This type is very popular throughout West Africa. An example of such an arrangement is the organizational setup in Benin, where miners reportedly work in small teams headed by a team chief who, in most cases, is the 'pit owner,' and ore is shared according to responsibility (Gratz 2006).

In Ghana, most of the galamsey activities are carried out in rural areas, usually under the concessions of LSM companies. Galamsey activities in rural Ghana have become very popular and easy to engage in due to the partnership ownership type. Several members come together to purchase land and use it for their gold mining activity. Most galamsey operators under this category employ the services of the youth, mostly school dropouts and sometimes children (Banchirigah, 2008). They dig deep underground holes and transport the ore to the surface using strings attached to buckets. The ore is ground and washed on the surface using water drawn from pumping machines from nearby rivers or wells dug by the operators. This is one of the most popular galamsey operations practiced in Ghana for many years, before the advent of excavators and other industrialized machines. In this type, simple tools such as a pickaxe, hoes, shovels, and cutlasses are used.

2.4.1 Ban of Galamsey in Ghana

The government of Ghana has over the years banned the activities of ASM in Ghana several times. The first ban was in 2006 under former president John Agyekum Kuffuor. The reason for the ban was to reduce the ecological destruction of galamsey. The government used the military to clamp down on the activity and arrest miners. It was dubbed operation flush-out (Tschakert, 2009b). In 2013, former president John Dramani Mahama also banned all ASM activities and initiated another military operation to flush out illegal miners. During these operations, mining equipment and houses were seized and destroyed (Hilson, 2017). The military was employed and given the power to arrest offenders. Despite the power given to the military and support by the government, the plan to flush out ASM operators was not sustainable because of the economic significance of ASM, especially for the youth (Hilson and Maconachie, 2020). This led to the lifting of the ban and the government easing the restrictions on galamsey. The continuous

destruction of the forest resources and their products, destruction of farms, and most especially, the pollution and destruction of water bodies and aquatic life became very intense. The Ghana Water Company (GWCL) March 2017 raised serious concerns about the activities of galamsey on the water bodies. It warned that if nothing was done to stop the pollution of water bodies in Ghana, the government would be importing water for consumption from neighboring countries by 2020 (Eduful et al,2020).

The above-mentioned reasons raised lots of concerns with regards to the ecological damages galamsey is causing the environment. There were many campaigns launched to put an end to galamsey to safeguard the rest of the forest and agricultural lands, and also to protect the polluted water bodies all over the country. One of the successful campaigns was launched in 2017 by City FM (a local radio station in Accra, Ghana), in association with the Ghana Journalist Association (GJA), and supported by other NGOs dubbed #stopgalamsey (Hilson, 2017). These public uproars against ASM led to the criminalization of ASM operators and the demonization of the sector in public discourses within Ghana such that, some now described the activities of galamsey miners as a menace, and galamsey was now often represented as “threats,” “problems,” and “headaches” (Hilson, 2017; Tschakert, 2009b).

The political campaigns compelled the government to once again ban all ASM activities, both registered and unregistered, in March 2017(Owusu et al, 2019). The ban was meant to address the socio-environmental problems caused by ASM and to ensure that the sector contributes to sustainable development in Ghana (Geenen, 2012). The government of Ghana formed an Inter-Ministerial Committee on Illegal Mining (IMCIM) to help reform the ASM sector in Ghana. The government also employed the security services under the auspices of "Operation Vanguard" to wage "war" against ASM (Hilson, 2017). Operation Vanguard is reported to have successfully arrested 1,129 illegal miners and destroyed 7,000 pieces of illegal mining equipment, leading to a 75% success rate in the mission to clamp down on galamsey activities (Pein, 2018).

Despite the high success rate, there were lots of allegations against the operation vanguard security personnel which suggested bribes were taken to allow galamseyers to keep operating. On the 1st of June 2018, Star FM, a radio station in Accra, reported that the Ghana Armed Forces suspended three soldiers with the anti-galamsey task force (Link 1). The soldiers were reported to have connived with certain individuals to extort money from galamsey operators. In

February 2018, the Ghana government withdrew the anti-galamsey operation task force from all mining sites. The directive, sources say stems from recent allegations of compromise against members of the Operation Vanguard team, with some locals accusing them of extortion, bribery, and corruption (Link 2). Although the ban was initially expected to last for 6 months, it lasted nearly 2 years and was only lifted for registered ASM in December 2018 (Owusu et al, 2019). Lifting the ban for registered ASM resulted once again in the continued destruction of ecological resources. This is mainly because it is difficult to differentiate between licensed and unlicensed miners in the field. Both registered and unregistered 'galamseyers' usually operate in the same locations. In some instances, they use and share the same equipment and workers. The structure of operations for both registered and unregistered mining are the same and therefore difficult to differentiate. Also, licensed miners in most cases do not just mine on their concession but trespass into other people's lands and properties. This has been one of the sources of conflicts associated with galamsey in Ghana (Banchirigah, 2008).

In April 2021, operation Halt II was initiated to continue with the duties of the then-operation vanguard. (Link3). Galamsey operators were arrested along with river bodies and forest reserves, and their equipment burnt. There seemed to be disagreement on the issue of burning the excavators seized from the galamsey miners, with the country divided on whether or not to destroy such equipment. This adds to the already existing conflicts surrounding galamsey amongst different groups such as the ASM operators, NGOs, the government, and rural people in the communities.

2.5 Theoretical framework (Environmental conflicts theory)

2.5.1 Definition and meaning

Environmental conflict is the social dispute related to the environment, thus the natural or geographical area affected by human activity. According to Flint (2005), they differ but frequently overlap, with other types of conflicts on gender, class, territory, or identity. According to Ozawa (1996), environmental conflict was a term virtually unheard of before the 1960s. Thirty years later, it is used commonly to refer to the numerous contests over the allocation of natural resources, pollution control, and land use. Environmental conflict therefore can be described as a product of the decisions taken concerning the way natural resources are allocated. This also involves how the land is used and how pollution is controlled by the activities that stem from the use of the resources. Environmental conflict is a struggle to change an unjust and unequal

distribution of resources (Buckles and Rusnak (1999). Thus, the efforts to demand change in the unequal distribution of a common pool resource lead to misunderstandings due to the different actors involved. Schmidtz (2002) refers to environmental conflict as a 'conflict in which at least one party is voicing concerns about the environmental impact of the other party's projects.

Environmental conflicts have been studied from different angles and disciplines, addressing the causes, the actors and their motivations, the forms of mobilization, the outcomes, and their multiple impacts within different contexts (Arnim et al, 2020). According to Homer-Dixon (1995), the concept of environmental scarcity as an outcome of environmental change, population growth, and unequal social distribution of resources, can lead to simple scarcity conflict. According to him, resource scarcity triggers violent conflicts because a 'reduction in the quantity or quality of a resource shrinks the resource pie, while population growth divides the pie into smaller slices for each individual, and unequal resource distribution means that some groups get disproportionately large slices' (Homer Dixon 1995: 247).

Environmental conflict in this study will therefore be defined as any dispute over the environment and its natural resources that stem from the allocation of resources and management of pollution control in societies.

2.5.2 Types and nature of environmental conflicts

The use of natural resources such as land, water resources, forestry and other mineral resources and their management results in environmental conflict due to many reasons (Kunurat et al, 1997). The power to decide who, how, when to use these resources, and how to control the pollution that results from the use of these resources in most cases results in conflicts. According to Jackson et al (2004), conflicts can occur between competing users of a resource; between those who want to use and those who want to protect a resource; or increasingly, between those who make decisions on resource allocation and use, and stakeholders who want more of a say in that decision-making. Chandrasekharan (1996) has classified natural resource conflicts into six types based on the actors involved namely.

1) Conflicts over access: These are conflicts that arise due to the failure of a social group or individual to have the ability to use a natural resource. In a community with common pool resources such as land and forest, preventing a particular individual, group, or stakeholder from having access to the resource can cause conflict.

2) Conflicts due to change in resource quality and availability: The change in the quality of a natural resource such as a forest or its depletion due to excessive use is a source of conflict. An example is the loss of the quality of forest due to the activities of galamsey in Ghana forests

3) Conflicts regarding authority over resources: The power to decide who to use natural resources in a community is one of the main sources of conflict. Deciding who should use a particular resource, when, how and the extent to which the resource can be used is a task that can lead to conflict. There could be a misunderstanding between the people and the authority concerning the allocation of resources.

4) Conflicts that are value-based: Individuals, groups, and governments have different values of the environment. These differences when intersected result in conflicts. The different groups may have different values such as intrinsic, amenity, aesthetic, religious, and historical that they attribute to the environment (Hayward, 1996). The value a particular group may have in a resource may not be shared or valued by the other parties.

5) Conflicts associated with information processing and availability: In the management of natural resources, how information is processed and made available to a certain group or individuals may be sources of conflict.

6) Conflicts occurring for legal/policy reasons: Some conflicts occur due to legal and policy reasons. Some policies may prevent some groups or individuals from having access to or use of natural resources. Legal reasons such as court orders and proceedings, litigations, and other legalities are also causes of conflicts in our societies.

2.5.3 Sources of environmental conflicts

The environment is made up of natural resources. These natural resources have been exploited and used for the benefit of man for a long time. The power to decide who to use the natural resources, its distribution, access rights, and division of labor has been a source of conflict for a long time (Robbins 2019). Conflicts over natural resources have always been part of human history, for instance, "the idea that wars are associated with resources is probably as old as war itself" (Le Billon, 2012 p.9). Environmental conflicts become worse if resources are overused, depleted, or degraded to a certain threshold. As competition for resources becomes more of an issue in developing countries, conflict increases. (Jackson et al, 2004). According to Homer

Dixon (1995:247), 'resource scarcity triggers violent conflicts because a 'reduction in the quantity or quality of a resource shrinks the resource pie, while population growth divides the pie into smaller slices for each individual, and unequal resource distribution means that some groups get disproportionately large slices'. He identified scarcity to be either supply-induced or demand-induced. Supply-induced scarcity is caused by the degradation and depletion of an environmental resource, for example, the erosion of cropland. Demand-induced scarcity results from population growth within a region or increased per capita consumption of a resource, either of which heightens the demand for the re-source. Finally, structural scarcity arises from an unequal social distribution of a resource that concentrates it in the hands of relatively few people while the remaining population suffers from serious shortages (Robbins, 2001).

Contrary to the view of Dixon above is the view of political ecologists. According to Kallis (2019), political ecologists have recognized that scarcity or abundance of resources is a relative construct. The transformation from 'nature' into a 'resource' is a historical process of social construction, which is related to human desires, needs, practices, conditions, means, and forces of production (Harvey, 1996). Political ecology, therefore, aims to provide more nuanced analyses of power relations in environmental conflicts by departing from the "neo-Malthusian assumptions, reductionist and essentializing character" (Le Billon, 2015) of the studies that primarily focus on scarcity as a conflict driver. Environmental conflicts are usually connected to the consequences of social and economic activities that cause damage to the environment (Glasbergen, 1995). Thus, galamsey, which is a huge economic activity, is associated with environmental conflicts due to its highly destructive nature to the environment and resources. Some scholars such as Chandrasekhan (1996) have classified conflicts over natural resources according to the actors involved and the stakes associated with the conflict and the resource. According to Sandford (1996: 148), 'environmental disputes are often intensely political, they involve many parties, complex scientific issues, substantial uncertainty, and in many cases, cultural differences'. Thus, environmental conflicts are caused by several factors engulfing political, cultural, social, and economic reasons.

In a society or community with resources, conflict becomes a normal situation due to the different characteristics of individuals or groups with different values, interests, hopes, expectations, and priorities (Mitchel, 2013). The different stakeholders such as groups,

individuals, and governments tend to value the environment differently. In a galamsey community in Ghana, such differences of interest and values exist among stakeholders such as the government, farmers, galamsey operators, and certain individuals in the community. Valuing the environment differently with different interests is a major source of conflict in natural resource management.

According to Martinez-Alier and O'Connor (1996), most environmental conflicts result from the distribution of environmental benefits and burdens. They term such conflicts as ecological distribution conflicts. 'These conflicts arise over the unfair distribution of environmental 'goods', such as clean water and air, or access to fertile land, and 'bads' such as exposure to pollution as well as risks and threats to health, livelihoods, social and cultural identities' (Martinez et al, 1996). This means that whenever there is an unequal distribution of resources among social groups or division of labor, environmental conflicts are likely to result.

Another source of conflict identified by Martinez et al (1996) is the economic distribution conflict. This is the conflict that arises due to the economic costs and benefits, or being linked to profits, salaries, or prices between sellers and buyers over commodities or resources found in the natural environment. Perkins et al (2005) argue that environmental conflicts emerge from the depletion of resources through social processes of land enclosure and privatization, services distribution issues, and loss of livelihoods, at the expense of the most marginalized social groups such as rural communities. Rural communities and their traditional farming activities are often the most marginalized in terms of land-use management and decision-making (Van Kerkhoff and Pilbeam, 2017). An example of such a conflict is the loss of agricultural farms and lands in the form of concessions to large-scale mining operators that eventually lead to the loss of livelihood of most farmers in rural communities.

2.5.4 Power relations in environmental conflicts

As noted by Robbins (2019), environmental conflicts shed light on who has the power to decide about control and allocation of environmental benefits, use, access to resources, division of labor, and appropriation amongst social groups. Some of these decisions tend to spark conflicts amongst social groups, who feel they have been marginalized or ignored. In rural communities, access to natural resources is sometimes blocked by some government officials or higher authorities, who act as the main guardians of the resource. In Ghana, the district office represents

the interest of the government in terms of resource allocation and appropriation. The power to give licenses to miners, for example, starts with the approval of authorities from the district offices who act as the guardians of the resources. However, politicians in Ghana are known to have special privileges and use their political influences for their benefit. It is alleged that people in power such as Chiefs, politicians, and other government officials are involved in the galamsey business in Ghana. These powerful actors are alleged to be involved in the distribution of operational licenses, collaborating with the Chinese, and finally protecting their illegal operations and sustaining them, despite the ban. The onslaught of Chinese migrants, largely from China invaded most gold-rich regions in Ghana, to either engage in illegal extraction of gold themselves or partner with locals (Hancock, 2013).

The involvement of the Chinese in galamsey is in the form of partnership with local Ghanaians. By law, only Ghanaians can apply for licenses to operate small-scale gold mining businesses. The Ghanaian partners register the business whilst the Chinese provide resources for machinery and the technical knowledge for the operations (Chengcheng, 2013). Unlike the locals who use rudimentary tools like pickaxes, shovels, and head pans in their galamsey exploits, the Chinese have turned to the use of heavy machines such as excavators and the use of toxic chemicals in the refining process (Aidoo, 2016). This practice is against Ghana's Minerals and Mining Act of 2006 (Act 703) which seeks to prevent foreign nationals from purchasing or mining on plots of land smaller than twenty-five acres, and a legal instrument that is meant to ensure that small-scale mining remains the preserve of the local population

According to the Ghanaian traditional culture, the chiefs have the power, in most cases, to allocate and approve the sale of land in the communities. This blatant display of power, where Chiefs connive with some government officials to allocate either farmlands or forests, without the consent of the owners, to Chinese miners or politicians, has been a major source of anger for the youth and conflict in most mining communities in Ghana (Hilson, 2012). An example is the sale of farmland to Chinese miners without the knowledge and permission of the farmer in this study area, which eventually led to a series of conflicts in the community. Such cases when taken up by the farmers usually prove futile because they are not powerful enough to fight the perpetrators. This is because the farmers are a poor population whereas the people behind the act are powerful and very rich (Banchirigah, 2008). The past and recent attempts by the government

to ban the activity exposed most of the powerful people who run galamsey sites deep in Ghanaian forests. Such galamsey sites keep operating regardless of the government's intervention and directives. Most of the security forces are seen protecting such illegal operations at the command and directives of some leading political party members. Such corruption in the fight against galamsey was exposed in a documentary by one of Ghana's popular TV and radio stations, Joy news (Link 4). It was observed during the raid that military officers were protecting the workers at the site. This footage angered most Ghanaians, mostly the galamsey operators, who felt were the victims of the laws passed against galamsey and its activities. It is easier to arrest local people mining on their lands as compared to arresting powerful people who mine hundreds of acres of land in the Ghanaian forests (Andrews, 2015).

The process for securing licenses for most community miners is close to impossible due to the difficulty in finalizing the process. The process involves the payment of excessively high registration fees and long bureaucratic processes amidst delay in decision making (Hilson and Potter, 2005; Hilson, 2017). This long and bureaucratic process however does not seem to apply to certain individuals of power. Licenses are granted swiftly due to their influence in government and ministries. This has been a source of frustration for most local galamsey operators who, out of anger and disappointment, decide to carry on their activities without the pursuit of licenses. Their actions are borne out of neglect of their mere existence and marginalizing them as poor people, who do not have any influence on the distribution and appropriation of resources in their communities. Thus, the underrepresentation of diverging socio-cultural aspects and concerns of marginalized actors who are invisible in the socially-constructed processes of an uneven environmental benefits distribution leads to conflicts (Martinez-Alier and O'Connor, 1996).

The use of power to amass wealth and appropriate resources and silence poor people has been an issue in the ASM industry in Ghana for a long time. The operations to stop galamsey unearthed some of these issues and put limelight on this issue. The rich and powerful people seem to be the ones benefiting most from the activities of galamsey all over the country. Most farmers have complained of their farms being taken from them forcefully and used for galamsey operations. These activities in most cases are supported by powerful actors who benefit from resource appropriation. Powerful actors tend to reap the benefits from environmental goods while shifting environmental burdens to marginalized or poorer actors (Demaria and D'Alisa, 2013). The

environmental burdens in these cases are the displacement of farms and damage to the farmland and forests, pollution of rivers and drinking water. The poorer actors are the rural community members who depend on these resources for their living.

In Ghana, arrested galamsey culprits do not seem to get the same punishment or equal treatment due to the unfair display of power. As was found in this study, most of the arrested culprits in the galamsey operations, who are connected to powerful people, have been released whilst most rural people are still behind bars. Some of these people are used as scapegoats and paraded to represent the guilty. Most Chinese arrested have been released and are reported to be back in business. The uneven and selective justice system, which is witnessed by the entire country, fuels most of the environmental conflicts in the community. These conflicts seem to be unending due to the pain and anger of the poor local people, who feel they are being treated harshly and differently due to their poverty. The local people feel the government is treating them that way to score political points and present the country as one that fights galamsey effectively and punishes culprits. It is difficult to understand in most cases, how well-known political figures in the country, who are kingpins of galamsey, are not prosecuted and allowed to continue operations because of their political influence and the power that protects them (Andrews, 2015).

2.5.5 Conflict discourses in ASM

As propounded by Robbins 2011, ‘increasing scarcities produced through resource enclosure or appropriation by state authorities, private firms, or social elites accelerate conflict between groups (gender, class, or ethnicity). Similarly, environmental problems become “politicized” when local groups (gender, class, or ethnicity) secure control of collective resources at the expense of others by leveraging management interventions by development authorities, state agents, or private firms (Le Billon, 2015) . Chandrasekharan (1996) describes six types of natural resource conflicts: conflicts over access; conflicts due to change in resource quality and availability; conflicts regarding authority over resources; value-based conflicts; conflicts associated with information processing and availability; and conflicts occurring for legal/policy reasons. He, therefore, classifies conflicts over natural resources according to the actors involved and the stakes associated with the conflict and the resources. (Jackson et al, 2004). Criminalizing galamsey in Ghana, an activity that serves as a major source of livelihood for many Ghanaians, especially local people, is likely to create disputes and conflicts. As in all-natural resources management, the unequal distribution and allocation of resources, resource appropriation by

other groups, and marginalization of certain groups have the potential to ignite conflicts (Banchirigah, 2008). There are conflicts among major stakeholder groups in the ASM industry such as the government, rural communities, traditional rulers, and NGOs. In some cases, it is between different groups in a community. These conflicts will be categorized using the types identified by Chandrasekharan (1996).

A notable and perhaps the most important conflict is that between the ASM industry and the government of Ghana with regards to the restriction of access and the criminalization of galamsey. Ghana has historically been an agrarian economy with agriculture accounting for a substantial share of rural production and employment. Agriculture is however no longer the dominant livelihood activity in some rural communities (Abugre et al, 2021). Most rural communities have shifted from agriculture to galamsey for their livelihood. Banning the activity, therefore, meant banning their main source of income and livelihood. Most of the people in the rural areas involved in galamsey were mostly farmers and unemployed youth. Leaving the people without agricultural lands to farm on, muddy waters that cannot be used for fishing or drinking, and without alternative sources of income and livelihood are recipes for conflict. This issue is complicated by the lack of communication between the government and the local people. The banning of galamsey according to the government is to protect the remaining natural resources from the obvious destruction and come up with policies and initiatives to help regularize galamsey into a sustainable form of mining. This part of the reasons for the ban has not been communicated effectively to the rural people whose livelihood completely depends on the galamsey business. The government of Ghana has over the years adopted the banning of galamsey as its main tool in the fight against galamsey. The ban in 2017 is the third time the government is banning the activity. In all three instances, the government has failed to stop the activity due to its huge economic impact on the people and the rejection by other stakeholders in the mining industry.

Failure to involve the ASM industry, especially the rural communities, in decision making is another source of conflict when it comes to issues of galamsey in Ghana. The rural people, who are mostly involved in the activity, believe the government is forcing a policy that does not take into consideration their welfare and livelihood. The rural people in most cases see the actions of the government as a means to prevent them from mining to take over their resources and

misappropriate them. This thought is cemented by the actions of some politicians and government officials who mine on lands they have prevented the local people from mining on. This has led to mistrust between the people and the government.

Another source of conflict is the alleged appropriation of the resource by state authorities and sidelining of the local people. As noted by Paul Robbins (2011), 'increasing scarcities produced through resource enclosure or appropriation by state authorities, private firms, or social elites accelerate conflict between groups'. People in government are engaged in illegal mining during the time of the ban on galamsey and provide protection and support to foreign nationals such as the Chinese at the expense of the local Ghanaian miner. In a widely circulated documentary by a Ghanaian radio station, Joy FM, it was revealed that state authorities, government officials, and political party executives are heavily involved in galamsey and provide military support for their workers, who are mostly Chinese (Link 3).

Another major conflict is between the LSM and the ASM. Almost all LSM companies have licenses to operate on concessions granted to them by the government. Most of these companies are located in rural communities. The small-scale miners who are unable to secure licenses in most cases operate on the concessions of the LSM companies with the justification that the land belongs to them. Scholars such as (Tschakert and Singha, 2007; Hilson and potter, 2005) reported the bureaucracy that involves the payment of huge sums of money before licenses are obtained by ASM operators. This issue is complicated further by the failure of some LSM companies to employ the local people due to a lack of education or the necessary skills. This has created tension between most LSM companies and the communities in which they operate. The conflict between these two stakeholders is serious to the extent that in some cases, security agents of some LSM companies arrest, beat, or even kill some local people who are found mining on their concessions during confrontations. The conflict is deepened by the issues of royalty payments to the rural communities. Most of the royalties paid by the LSM companies are not being used for the intended developmental projects for the rural communities. The relationship between large companies and small-scale miners is poorly understood and often troubled, with mutual mistrust and sometimes conflict. Large companies may consider small-scale miners as 'trespassers', while small-scale miners may see the granting of a concession to a large company as depriving them of their land and livelihoods (MMSD, 2002). Although

examples of more positive relationships are beginning to emerge, accusations are still made that governments and large mining companies, sometimes in collusion, forcibly evict small-scale miners from their land and sometimes even kill them.

Another source of conflict is the difficulty in securing licenses by illegal miners. According to Hilson, (2012), illegal miners are discouraged from registering their activities due to the long and bureaucratic processes they have to go through. Licenses are however issued to LSM operators and some foreign nationals, whose mining activities pollute the water bodies and degrade their forest and agricultural lands. Fisher (2007) argues, “artisanal mining in Africa is widely associated with marginalization,” the first characteristic of which, the exclusion of marginalized groups from having access to or rights over mineral resources, includes classifying artisanal miners as illegal because of “poor availability of land, insufficient institutional support, and a complicated licensing system” and giving licenses to large-scale mines to occupy areas that hitherto belonged to artisanal miners. Illegal miners do however feel that mining the resources in their communities is their natural right and are entitled to it, with or without licenses (Andrews, 2015).

There are other societal conflicts among different groups in a Ghanaian mining community. The sources of these conflicts stem from the scarcity and use of land. Smallholder farming is the main form of agriculture in Ghana, with 90% of the farms being less than two hectares in size. The boom in ASM has led to the loss of both agricultural lands and jobs. This has been a major source of conflict between farmers and galamsey operators. The conflict between farmers and galamsey operators is well documented (Hilson 2012). Most farmers lose their land, water sources, and agricultural produce due to the encroachment and destruction of their lands by galamsey operators. The displacement of farmers by galamsey and its activities have resulted in numerous conflicts over the years in rural communities (Banchirigah, 2008). This has made life difficult for most farmers who completely depend on their farm produce to feed and take care of their families. Farmers and galamseyers are in constant conflict over the acquisition and use of land. The land has therefore become very scarce and difficult to acquire even in rural areas where lands are known to be cheap and easy to get. The farmers struggle to buy land due to the high prices of land influenced by galamsey (Akabzaa, 2012). The galamsey operators are known to offer huge sums of money to landowners. This unhealthy competition for lands has deepened

the conflicts between farmers who are unable to pay these huge amounts of money and gamseyers who are willing to pay.

2.6 Rural Livelihood

Ellis (1998) defines livelihood as ‘that which comprises assets (natural, physical, social, human and financial capital)’, the activities and the access to these that together determine the living gained by the individual or household’. Livelihood is thus a means of securing the necessities of life and involves all strategies needed to live and survive. Rural communities have a forest-based livelihood system where they depend on the forest and its products for survival (Obeng et al, 2019). An example is a system in Ghana where rural people depend on the forest and its resources for their livelihood by sourcing the forest for Non-Timber Forest Products (NTFPs) such as snails, mushrooms, firewood, fruits, and medicines.

NTFPs are a very important source of livelihood for rural communities in most parts of the world. Rural people earn a living by collecting, using, and selling them to make money for other expenses of the family. In Ghana, items such as mushrooms, wood, and snails are collected and sold in the nearby markets to earn money. Thus, NTFPs are a source of employment and income-earning activity for most people in the community. Local health practitioners are also popular in Ghanaian rural communities. They employ the use of NTFPs for medicinal purposes. These local doctors, as they are popularly referred to in Ghana, provide services equivalent to that of the government hospitals. The main difference is that their treatment is based on the use of herbs, leaves, the bark of trees, and tree roots. They have been providing health services to rural communities for decades and have earned the people's respect and trust. These local doctors use the forest and its products for the service of the community and by doing so earn their living and income from the practice.

Farming, Fishing and hunting are the main livelihood activities in most rural communities in Ghana. Subsistence agriculture amongst all is the widely practiced form of farming in these communities. Almost every household has a farm that feeds the family. The most common crops cultivated include maize, Yam, tomatoes, pepper and cassava. Some farmers in most rural communities in Ghana cultivate Cocoa. Ghana is one of the leading producers of Cocoa in the world and therefore has the potential for commercial purposes. Farmers who cultivate Cocoa make a living from selling it in quantities. The government of Ghana collaborates with farmers in

supplying and purchasing Cocoa in large quantities. Cocoa farming is a major income-earning activity for rural people. Farms are either individual or for the entire family, where they cultivate and share the proceeds after harvesting. Most of the food from the farms is used to feed the family and the rest is sold to provide for other necessities such as school fees and other bills such as electricity. In communities where there are rivers, fishing is a very important livelihood activity for rural people. Fishing is an age-old practice in most rural communities in Ghana. Some fishermen engage in the activity on a commercial basis whereas most people fish to feed their families. In either case, fish caught is used to supplement the food in the family and also earn some money from its sales.

Local livelihood is highly dependent on galamsey activities due to unemployment and the unrealistic nature of the alternative programs rolled out to them by both government and LSM companies (Andrews 2015). Galamsey operators dig to make a decent living and their activity has become a "viable livelihood" (Tschakert 2009b). There are few job opportunities in rural areas, especially for the youth. In Ghana, galamsey in rural communities is thought of as a survival strategy and not an opportunity for getting rich. Though 'opportunism' and people's desire to 'get rich quick' are commonly presented explanations, the most widely accepted reason is nationwide poverty (Barry, 1996). ASM as compared to farming employs different categories of people, both educated and otherwise. This provides a wide range of opportunities for many individuals, both skilled and unskilled labor, in the communities to be employed. Figure (3) shows the structure and categories of people employed in the sector.

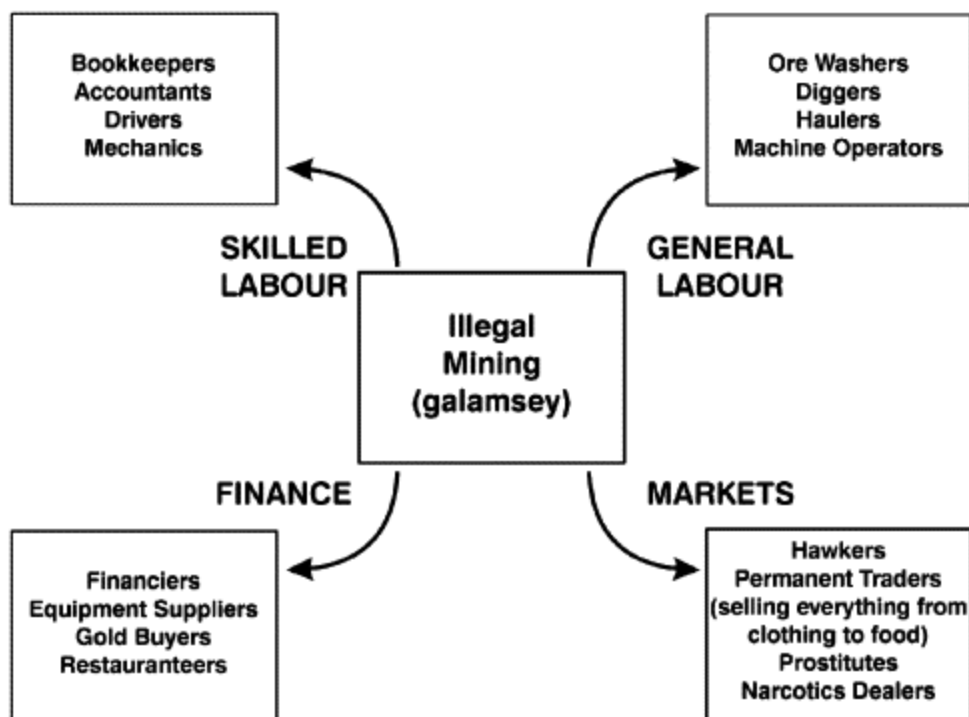


Figure 4: Employment Structure of Galamsey operations Source: Banchirigah 2008

2.6.1 Poverty Traps of illegal mining

Contrary to the idea of people getting into galamsey ‘to get rich quick’, most people indulge in it due to poverty. Illegal mining workers are unable to improve their lives economically nor able to acquire assets that could be used for further financial development. This is due to the nature of the work and the poverty traps they find themselves in (Hilson, 2012). A poverty trap is a “critical minimum asset threshold, below which families are unable to successfully educate their children, build upon their productive assets, and move ahead economically over time” (Carter et al, 2006). According to Banchirigah (2008), illegal miners are caught up in a vicious cycle of poverty. The specific reasons for their poverty include low productivity, inadequate investment, limited mineral resources, and the use of inadequate/inappropriate technology. They are not able to save enough money to expand their livelihood options. 'Whilst the vast majority of these people may not necessarily be struggling to feed themselves and their families daily, there is reason to believe that a large share does find it challenging to accumulate sufficient earnings to raise their living standard beyond a subsistence level' Hilson (2012).

In a given area, the increase in the numbers of artisanal and small-scale miners, with inadequate human and social capital, on limited and marginal resources, lowers productivity and income per

head, which as a result affects the technology choices that miners can make. Working from a low capital and asset base, most small-scale mining activities are rudimentary, with little mechanization (Shovels, hoes, picks, and wheelbarrows are the tools commonly used). Where there is mechanization, equipment and techniques are inefficient and hazardous to the environment and the miners. In consequence, productivity, ore recovery, and yields continue to be low and income remains at a subsistence level. This hinders re-capitalization and upgrading of mining operations and keeps small-scale miners in a vicious cycle of poverty. (UNECA, 2003)

3 Research design, methodology, and study area description

3.1 Introduction

Hay, (2016, 447) defines methodology as 'the philosophical and theoretical basis for conducting research that is much broader and sometimes politically charged than method alone. This thesis tries to understand how the opinions of local people about illegal mining lead to conflict in their community. It also tries to understand how the people feel about the government's ban on illegal mining and how it has impacted their ecological resources and livelihood. It seeks to understand the emotions behind their opinions and how they feel towards the government's approach to solving the issues related to illegal mining. Such a study is best successful with a qualitative approach due to the nature of the data that will be collected. As Winchester & Rofe (2016) explain, qualitative methods are mainly used in studies aiming to decode "individual experiences, social structures, and human environments". The research questions and objectives of this study would have been difficult to achieve using quantitative methods, as further explanations of events, experiences, and observations were needed to make sense of the final results and the data collected. For example, in trying to understand the reasons why respondents chose the answers to the questions, it was necessary to allow them to speak freely and explain their choices. Also in most instances, respondents explained in detail their reasons and justifications for the actions.

To achieve this aim, there was the need to visit the selected community, interact with them, and observe their activities to understand their views and perceptions on the research topic. This process of seeking information, understanding, and answering research questions is what qualitative research is about.

3.2 Fieldwork (Data collection)

According to (Hay 2016: 447), methods are how data are collected and analyzed (e.g. in-depth interviewing). Semi-structured interviews and participant observations were primarily used in gathering data during this study. The data was collected in January 2021 after the lifting of the 2017 ban on registered ASM. There were reports in the media and articles written frequently about the happenings in various galamsey communities in the country. Previous researches such as Banchirigah (2008), Tschakert 2009b and Hilson (2012) have showed the damages illegal mining is causing to the environment and the need for the government to act to protect the forest and water bodies. I visited the local government's website and got the numbers of a few selected

assembly members, thus, the local government representatives of three communities that were potential areas. I spoke with them individually and had a meeting with them the following day. We unanimously agreed on one community. The selection criteria and reasons for selecting the community will be explained in the next section of this chapter. The assembly member of the chosen community, together with another assembly member from the neighboring community, agreed to serve as my gatekeepers. A gatekeeper is an individual who serves as a link between a researcher and a respondent in a study. They make it easier for researchers to conduct their study by guiding and helping the researcher gain the trust of the people. I needed the gatekeepers to introduce me to the Chief and elders of the community because a study could not be conducted in rural communities without the permission of the Chief and elders of the community. Another important reason for having gatekeepers was to ensure my safety and the safety of the respondents. The people were very skeptical and initially suspected I was a government representative posing as a researcher to either get the galamsey operators arrested or put them in some kind of trouble. The gatekeepers, after properly introducing me and my research to the people, made it possible to gain the people's trust and cooperation.

They suggested I visit the community after three (3) days. This was to give them enough time to make the necessary arrangements for my visit and meeting with the community chief and elders. I visited the community after three days and was introduced to the chief and elders of the community by the gatekeepers. I explained the purpose of the study and what I intended to do, as customs demanded in the community. The people were skeptical initially, they thought I was from the government as initially explained to me by the gatekeepers, but for the intervention and confirmation by the assembly members, they were convinced. They assured the Chief and elders that I was a student and was conducting this study solely for academic purposes. Upon providing proof that I was a student, I was wholeheartedly welcomed into the community and was permitted to start the data collection. I visited the community two (2) more times to familiarize myself with the environment and to finalize the reconnaissance survey. I was scheduled to come the following week to start with the interviews.

The data collection process started on my first visit to the community. The people's skeptical behavior initially, thinking I was from the government, hinted at the level of conflict and tension between the two stakeholder groups, thus the government and the rural people. I had the

opportunity to have informal conversations with the gatekeepers, and other community members. These conversations more or less shaped my research questions and pointed me in the right direction. I was able to identify important scenarios and target groups within the community with different narratives concerning illegal mining. I had a total of 25 questions to be answered by each respondent. The questions were semi-structured and some of them gave the options for respondents to express themselves or give further explanations. The whole interview lasted about one (1) hour. I had to restructure the entire interview process due to the availability of the respondents. Most of them were either farmers or galamsey operators and were not available during the day for the entire interview. They returned from the farms and galamsey sites in the evenings. I would fill out the quantitative part of the questionnaire with them in the mornings before they go to the farm and continue with the interview when they were back in the evenings. It became hectic for me as I drove 2 hours to get to the community each day. Sometimes the farmers came a bit late and I would interview a maximum of two (2) farmers and drive back at night, which was difficult for me. I decided therefore to stay in the community for three (3) days to collect the rest of the data. This gave me the chance to observe the people and their activities during the day and the opportunity of interviewing the farmers at night when they were back from the farms. I was not in a rush to drive back home so I was able to conduct lots of interviews and have detailed conversations with the farmers at night. The people seeing I was staying in their community were happy and made themselves available for the interviews. They would in most cases after the interview make time for informal conversations about the topic and detailed explanations of similar issues in other communities and stories were discussed. I documented lots of data through the official interviews and the observation notes from my stay in the community.

3.3 Study area selection

The Bekwai municipality was selected for field study because it has a very high percentage of communities involved in galamsey activities and it's a reasonable distance from the capital. The destruction of farms and pollution of drinking water in the community has been widely reported. As mentioned above earlier, after, meeting with three different community representatives, it was agreed the study should be conducted in Xanza (not the actual name of the community) because:

1. Galamsey was still ongoing in the community despite the ban

2. It had the majority of cocoa farmers amongst the surrounding communities and had the richest forest resources.

During the meeting with the gatekeepers, it was disclosed that there were lots of conflicts amongst community groups with regards to galamsey activities in the community, which didn't seem to be the case in other communities. The name of the community was withheld because the respondents were concerned about their safety and possible intimidation by the Chief and other powerful elders in the community who were alleged to be involved in galamsey. Most of the respondents alleged that the elders were involved in selling lands to Chinese galamsey operators in the community. Another reason was the fact that there were already serious conflicts ongoing in the community due to the arrests of some local galamsey operators and the loss of a resident's arm in a fight with a Chinese galamsey operator. There were lots of tensions in the community with regards to issues of galamsey and the people were scared talking about it. The assembly member of the community mentioned that almost half of the local people have lost their farms to galamsey, of which he was a victim. This and the reasons above particularly piqued my interest in conducting the study in the chosen community.

3.3.1 Study area description, Topography, vegetation, Occupation, and local economy

The Bekwai Municipality is one of the 43 Metropolitan assemblies, municipal and district assemblies (MMDAs) created by the government in the Ashanti Region, with its administrative capital as Bekwai. The Municipality is located in the southern part of the region, it lies within 6° 00'N - 6°30' N and Longitudes 1°00'W and 1° 35'W and it cover a total land area of about 553sqkm. (Ghana districts, 2017). The population of the Municipality according to the current 2020 Population and Housing Census is 146,213 with 69,999 males and 76,214 females. The Bekwai municipality is known for its vast and rich forest resources. It is home to forest reserves such as Essumeja and Prampram. The main occupation of the people of the municipality is farming, of which cocoa and oil palms are the major crops produced commercially. The Bekwai Municipal Assembly lies within the moist-semi-deciduous forest zone. Its climate is described as semi-equatorial, characterized by double maximum rainfall. It has an average temperature ranging between 20°C in August and 32°C in March. The mean annual rainfall is between 1600mm-1800mm.

The Bekwai municipality is predominantly an agricultural economy with most of the inhabitants being farmers. Food such as maize, Cassava, garden eggs, tomatoes, and pepper are cultivated. Agriculture employs about 58.2% of the labor force in the district (Asamoah et al, 2016). Cocoa and oil palm are the major cash crops commercially produced in the municipality.

In Xanza, the main economic activity of the people is cocoa farming and galamsey. Fig.5 below shows the map of the Bekwai municipal assembly and its surrounding communities

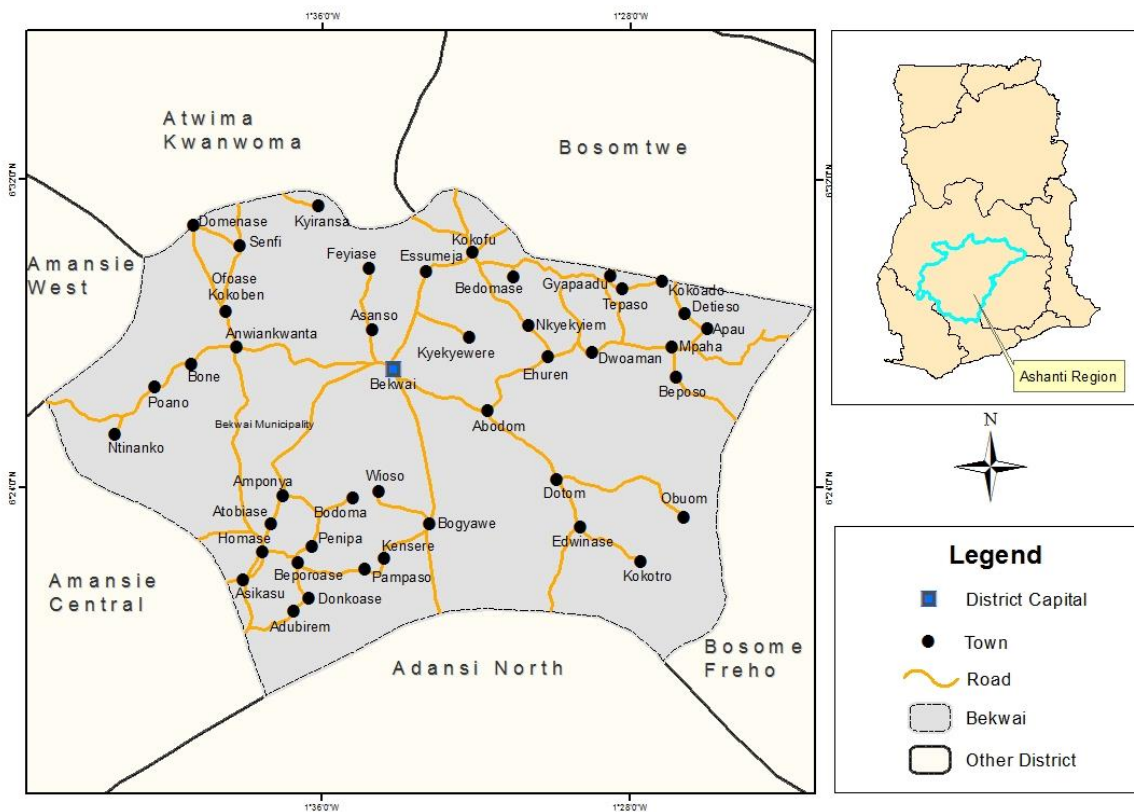


Figure 5. Map of Bekwai municipal assembly with its surrounding communities. **Source:** Department of Geography and Rural Development, KNUST-Ghana

3.3.2 Sampling method and size

The study was designed to focus on the local people and find out their views and perceptions. To understand the dynamics of the issue, I decided to include farmers, galamsey workers, and traders/market sellers. These were the main economic activities in the community. I purposely chose these groups because they were major stakeholders when it came to galamsey in the rural communities. The impact of galamsey in every community is felt mostly by these group and they

play major roles in the conflicts surrounding galamsey. According to (Hay, 2016), this is a sampling method where participants are selected because of their characteristics, such as where they work, where they live, or their interests. A total of 25 people comprising of eleven (11) farmers, seven galamsey workers and Six (6) market sellers were selected for the survey. I interviewed the chief and three (3) clan heads (called 'Abusuapanyin' in the Twi language). I also interviewed the assembly member who is the government representative of the community. The Chief and Abusuapanyin usually are the custodians of the land and serve as family heads in Ghanaian communities. They have the power to sell lands for different purposes in the community. The common perception is that galamsey operators operate on lands sold to them by the Chiefs and clan heads. I found it important to include them in the study to hear their views and opinions too. The youth in the community play a vital role in employment and livelihood within the local Ghanaian setting. They constitute the working force in farming and are mostly employed in the galamsey business. The youth in most cases help the parents in providing the sustenance and serve as breadwinners in households as seen in this study. The youth are actively involved in the decision-making process in most households. Finally, the market women or traders are found at galamsey sites, selling and conducting businesses in the community. Most of the businesses carried out in the community are centered on this group. Women in most parts of the rural communities fend for their families and provide strong financial support to their husbands and children. Women in the Ghanaian local communities play a vital role in the families' livelihood and sustenance. In this study, women were found to engage in galamsey, farming and trading.

3.3.3 Interviews

Interviews are the best tools for gathering data when it comes to a qualitative study. It allows the interviewer the opportunity to express their thoughts, emotions, feelings, and narrate or describe an event from their perspective. Three main forms of interviews have been identified and used in a qualitative study. Structured interviews are a predetermined and standardized list of questions that are asked in almost the same way and the same order in each interview. Unstructured interviews are in the form of conversation or storytelling. The third type which is used in this study is the semi-structured interview. This is the interview type that provides some degree of predetermined order but is flexible (Crang and Cook, 2007). In conducting the interviews for this

study, audio and video recording gadgets were used. Again, their consent was sought before recording any conversation or interview.

The questionnaire, as well as the consent for the respondents, was drafted in the English language. I however had to conduct most of the interviews in the local Twi language. The majority of the respondents could not speak the English language. To enable respondents to express themselves freely, I decided to carry out the interviews in the local dialect Twi. Interviewing in the Twi language was possible for me because as a Ghanaian, I understood and spoke the language fluently. Another added advantage was that the people felt comfortable expressing themselves knowing I understood every word they said. This made the interviews engaging and less tiresome, considering it was a bit lengthy. I however in some instances employed the services of the gatekeepers in the translation of some words. This was done to ensure the best translation was done for the interviews and to minimize translation errors.

I read and explained to each respondent the consent letter and made them aware of the study and their right not to partake in the study. I explained to them they can withdraw their responses even after the data collection. I discussed in detail the issue of anonymity with the respondents. They were much concerned about the anonymity because according to them, illegal mining is a very sensitive issue in the community. After realizing how important and sensitive the issues were to them, I decided to conduct most of the interviews alone without the help of the assembly members. This was to allow the respondents to speak freely and share as much information as they wanted. The questionnaire was categorized into three (3) sections. Table 1 below summarizes the information

Table 1: A summary of the different sections of the questionnaire

| SECTION | INFORMATION | VARIABLES |
|---------|--|---|
| 1 | Socioeconomic data of respondents | Age, educational level, occupation, marital status, household size |
| 2 | Using the 5 point Likert scale to measure the level of agreement of statements about the negative impacts of Galamsey on the forest, agriculture and the water bodies. | 1.Strongly disagreed 2.Disagreed 3.Neutral 4. Agreed 5. Strongly agreed |
| 3 | Using the 5 point Likert scale to measure the level of agreement of statements about the impact of galamsey ban on the people's livelihood and the use of the ecological resources. More interviews on reasons for selecting answers to the statements above. | 1.Strongly disagreed 2.Disagreed 3.Neutral 4. Agreed 5. Strongly agreed |

Source: Ali Fieldwork, 2021

Section three (3) was more open and allowed the respondents to express themselves. In answering the questions in this section, respondents sometimes took the opportunity to answer

and clarify some of the questions in the other sections. In interviewing those involved in galamsey, I requested and was granted permission to visit their site. I had the opportunity to interview and also had informal conversations with the workers.

3.3.4 Observation

The basic purpose of observation during research is to understand parts of the world more or less as they are experienced and understood in the everyday lives of people who 'live them out' (Crang & Cook 2007). Observations are done for purposes such as counting numerical data and to complement other methods such as interviewing, to gather additional descriptive information (Kearns, 2016). In my effort to document and observe the activities of the people and get more insight into their earning activities and livelihoods, I decided to stay in the community for some days during the last part of the data collection when I had to finalize my work and leave. I wanted to experience the dynamics of illegal mining in the local communities and observe how the people are affected by its consequences. Prior to starting the interviews, I visited the community three (3) consecutive times from morning to evening. I would arrive in the community at 9:00 am and leave around 5:00 pm. My observations started from these initial visits. Also during the interviews, I took the opportunity to observe some activities of interest to my study. Also, most of the respondents would point to either action, activity, or a place whilst explaining it to me. I sought their consent once again concerning my decision to stay in the community to finalize the data collection. They agreed and provided me with accommodation. Staying in the community gave me access to a lot of information and places.

I observed how they started and ended their day. I spent the day visiting the local people and spending time in the markets and other places of interest. I observed how they were very dependent on sachet water for all domestic purposes and how that has increased the prices of water in the community. They relied on sachet water (commonly produced purified drinking water in Ghana sold in disposable plastic bags) because the main source of drinking water in the community has been polluted by activities of galamsey. Efforts to drill boreholes have proven futile as the underground waters have also been polluted. This in-depth seeking and understanding of the issue are explained by Kearns in Hay, (2016) 'the researcher seeks an in-depth understanding of a particular place and time through direct experience.

In my observations, I emphasized the earning activities of the target groups. This was done because I was looking to find out how illegal mining and the subsequent ban had affected their livelihood. Their earning activity was mainly the sales they made from their goods. Sometimes during my conversations with them, the respondents would delve deeply into how they managed to keep the shops running currently and how they conducted other businesses to support the trading business. It was mostly quiet in the mornings and early afternoons, the market square was not busy and there were few people. The market was busy in the evenings between the hours of 4:30 pm to 6:00 pm. This I was told happens every time the galamsey operators go to the field. I noticed how quickly within that time frame some food items were sold out. During that time, most of the youth were back from the galamsey sites and farmers back from the farms.

3.4 Data Analysis

Data analysis is an ongoing process in a qualitative study. It involves structuring and making sense of all data collected during the study. The process of data analysis depends on the method and type of data collected during the data collection stage. In this study, the methods used for data collection were interviews and observation. In addition to the interviews, field notes were taken during the interview. The data collected for this study in the questionnaire were semi-structured. Using a five (5) point Likert scale, respondents were asked to select their level of agreement or disagreement with the statements made with regards to the impact of galamsey on their forests, agricultural lands, and water bodies. The respondents had the option of explaining their reasons for the options chosen on the Likert scale. Audio recording devices were used to record the follow-up interviews and explanations by the respondents. Using audio recording devices provides the researcher the opportunity to playback the interview and answers given by a respondent during the analysis stage. I, therefore, used the Statistical Package for the Social Sciences (SPSS) for the data analysis. I entered each of the questionnaires in an excel sheet to get a summary of the results. I transferred the coded texts to the SPSS and used descriptive techniques to calculate the frequencies and percentages of the results. The rest of the recorded interviews were transcribed. Though I had the recordings in the Twi language as mentioned earlier, I had no problem transcribing them due to my Twi language proficiency. The analysis of transcriptions from interviews aims for the researcher to carefully evaluate the data to find meaning in it and patterns in the material (Crang & Cook, 2007).

I reviewed the transcribed interviews, playing the recorder and reading from the transcribed texts at the same time to ensure everything was captured. Themes such as impacts on agriculture, forests, and water bodies were noted. Opinions and quotes were placed under each theme.

3.5 Ethical considerations

Qualitative studies are frequently conducted in settings involving the participation of people in their environments. Therefore, any research that includes people requires an awareness of the ethical issues that may be derived from such interactions (Orb et al, 2001). Ethical issues are present in any kind of research. The research process creates tension between the aims of research to make generalizations for the good of others, and the rights of participants to maintain privacy. Ethics pertains to doing well and avoiding harm. Harm can be prevented or reduced through the application of appropriate ethical principles. Thus, the protection of human subjects or participants in any research study is imperative (Orb et al, 2001).

Most of the respondents were scared initially to speak freely because they were scared the information they gave could affect them negatively. One respondent said there were possibilities people in power (The chiefs, elders, and the politicians involved in galamsey) could come after them and make life difficult for them. Almost all the respondents mentioned that issues of galamsey were very sensitive in the community and therefore they avoided it as much as they could. I decided to anonymize all the respondents to protect them from harm. I discussed in detail with each respondent the meaning of anonymity and how I have decided to protect their identity and data. This is in line with what scholars such as Dowling (2016) explain about the researcher having a certain responsibility for everyone involved in the research process. He said the most important responsibility is the commitments made to the persons who are subjects of the research. Also in my attempt to make respondents feel safe and understand their significance to the study, I made them aware they had the right to withdraw from the study anytime they felt like doing so.

In qualitative research such as this, it is very important to establish boundaries between the researcher and the respondents. This is to prevent the corruption of the data and influence the respondents in giving out information they would not give under normal circumstances. Some of the respondents told me they needed my help to secure permits and licenses for mining. Others

also said I should help them arrest some culprits and expose some powerful people behind galamsey in the community. I could see they were raising their hopes and were waiting for a promise from me to help them with their requests. I told them that I was not in a position to either give or deny permission for the galamsey operation nor was I there to pass judgment on the issue. I told them all I wanted was their opinions and narratives about the study subject and nothing else. I established that boundary right from the start and the people told me they appreciated my honesty. I did that to make sure my relationship with the respondents did not influence the outcome of the interview. In line with this, I paid for the accommodation given to me and provided for myself food and other items needed for my last three (3) day stay in the community. I must say that being friendly with local people was important in getting them to open up and trust me with their information. I was friendly with them but I made sure the boundaries were not crossed.

With regards to subjectivity and objectivity, Dowling (2016), referred to subjectivity as 'involving personal opinions and characteristics into research practice'. Subjectivity guides everything from the choice of topic that one studies, to formulating hypotheses, selecting methodologies, and interpreting data (Ratner, 2002). The selection of the study topic was guided by my subjectivity of the topic and my opinions concerning illegal mining. Being a Ghanaian and having relatives living in rural areas that mostly depend on their ecological resources for their livelihood, may have played a significant role in shaping my subjective understanding of the issues. I however do not have any personal connection to or with anybody in the Xanza community. To be objective in this study, however, is almost impossible. This is because one can only be objective about an issue if the person is distant from the issue or research. The nature of this study is qualitative. I had to interact with respondents and observe them closely and develop a relationship with them. Achieving objectivity in qualitative studies is considered difficult or even impossible (Crang & Cook, 2007)

Lastly, another issue of ethics in this study was the importance of getting approval for research. This approval was to ensure obtaining of sensitive or criminal information was regulated by the right authorities. I sought the approval of the Norwegian Center for Research Data (NSD) before the data collection began in January 2021. The project's delay was reported to the NSD again in 2022, it was once again approved before the completion of the master thesis. This study however

did not collect any criminal or third-party information. All the data collected is deleted after the submission of the thesis as mentioned in the NSD report.

4 RESULTS

This chapter presents the results of the study. The results in this chapter are presented in three (3) parts. The first part presents the socio-economic data of the study respondents. It is summarized and presented in a table. The second part shows the results of the perceptions and views of respondents about the impact of illegal mining on their ecological resources. The third part shows the results on respondents' view of the impact of the ban on galamsey on their livelihood and the local economy.

4.1 Socio-economic data of respondents

A total of twenty-five (25) respondents were interviewed for the study. Males slightly outnumbered females with a total number of thirteen representing 52% of the survey, females were twelve (12), representing 48%. The majority of the respondents (11), representing 42% had no formal education. Eight (8) respondents had a Primary education, representing 32% whilst four (4) respondents, representing 16% had a junior high school education. The highest form of educational level amongst the respondents was the senior high school, two (2) representing 8%. This indicates a high level of illiteracy in the community.

The occupations of respondents in the results show that the majority of the respondents are farmers. Almost all the respondents are engaged in farming and galamsey in one way or the other. Most of the respondents had side jobs such as working as a hair clipper (Barber) and driving for the males. The main distinctive factor however in this study is whether respondents do it as a full-time job or not. Farming is known to be the main economic activity of rural people in Ghana before the advent of galamsey. The farmers in rural communities in Ghana produce enough food to feed themselves and sell their produce on selected market days nationwide. In Ghana, it is a common practice to have bigger markets patronized highly on selected days of the week. For example, in Bekwai, the market day is on Thursday. All farmers in the municipality transport their farm produce to the market square to sell. The people are however shifting to galamsey due to the sudden land-use change. As shown in the results, 68% of respondents indicated they were involved in galamsey. The level of involvement, in this case, is also a distinctive factor. Some are involved in galamsey as a full-time job, others, such as the farmers and traders, do galamsey as a part-time job. There usually is a member in each household who

may be involved in galamsey to supplement the family's income. Some of the respondents abandoned farming and joined the galamsey business because farming became difficult to practice. For example, issues such as unavailability of water for irrigation, chemical pollution of land, and the subsequent high cost of fertilizers and lower yield, made farming unattractive. Shifting to galamsey was the only available option for farmers to be able to survive in the community. As presented in Table 1, 32% of the respondents were above 51 years, with an average age of 45 years indicating that the respondents in the study area are in the working class.

The majority of the respondents had a household size ranging between 5 and 10. The average household size in this study is 7 people. In Ghana, rural communities are known to have a large household size due to the extended family system. A household may comprise many generations who live in the same house. An example is a family in this study with a total household of 20 people living together as a family. As shown by the study, 44% of the respondents have household sizes between 6 and 10. When it comes to the marital status of respondents, ten (10) were married, representing 40%, 4 were single, 6 were divorced and 5 were widowed, representing 16, 24, and 20% respectively. The majority of the household size is between 1-5 for 11 respondents and the same for 6-10, representing 44% each. Two respondents had a household size of 11-15 (8%) with the highest being 23 members in one household. The mean household size was found to be seven (7). This is quite a large number of people in a Ghanaian community and it shows the level of dependence in a rural household. The older generation ranging from 51+ is the highest with 8 respondents representing 32%. The youth population ranging from 20- to 30 is 7 people, representing 28%. This indicates the working population is low in the community. Table (2) below summarizes the socioeconomic data of the respondents.

Table 2: The socioeconomic data of respondents

| Variable | Description | Frequency | Percentage of total |
|---------------------------|-------------|-----------|---------------------|
| Occupation of Respondents | 1. Farmer | 11 | 44 |
| | 2. Galamsey | 7 | 28 |
| | 3. Traders | 6 | 24 |
| Total: | | 25 | 100 |

| | | | |
|----------------------------------|-------------|----|-----|
| | | | |
| Marital status of respondents | 1. Married | 10 | 40 |
| | 2. Single | 4 | 16 |
| | 3. Divorced | 6 | 24 |
| | 4. Widowed | 5 | 20 |
| Total: | | 25 | 100 |
| Educational level of respondents | 1. None | 11 | 42 |
| | 2. Primary | 8 | 16 |
| | 3. J.H.S | 4 | 32 |
| | 4. S.H.S | 2 | 8 |
| Total: | | 25 | 100 |
| Gender | 1. Males | 13 | 52 |
| | 2. Females | 12 | 48 |
| Total: | | 25 | 100 |
| Household size of respondents | 1. 1-5 | 11 | 44 |
| | 2. 6-10 | 11 | 44 |
| | 3. 11-15 | 2 | 8 |
| | 4. 16-20 | 1 | 4 |
| Total: | | 25 | 100 |
| Mean household size:7 | | | |
| Age of respondents | 1. 20-30 | 7 | 28 |
| | 2. 31-40 | 5 | 20 |
| | 3. 41-50 | 5 | 20 |
| | 4. 51+ | 8 | 32 |
| Total: | | 25 | 100 |
| Mean age: 45 | | | |

| | | | |
|-------------------------|--------|----|-----|
| Involvement in Galamsey | 1. Yes | 17 | 68 |
| Total: | 2. No | 8 | 32 |
| | | 25 | 100 |

Source: Fieldwork data Ali, 2021

4.2 Themes from the interviews and questionnaire

4.2.1 Impacts of galamsey activities on Agriculture

Respondents were made to agree or disagree with the statements that galamsey had made it difficult to get access to land, reduced land fertility, increased the cost of land, and resulted in the increase in food prices in the community. From the results, the majority of the respondents agreed with the statement that galamsey has made access to agricultural land difficult with 52% and 36% agreeing and strongly agreeing respectively. With regards to the reduced fertility of the land, 76% of the respondents agreed that galamsey activities have resulted in the reduction of land fertility, with 52% agreeing and 24% strongly agreeing to the statement. 20% of the respondents were undecided about the impacts whilst 4% disagreed with the statement. The results also showed that 44% of the respondents agreed with the statement that galamsey has led to the increase in the cost of land, and 40% strongly agreed. Thus, 84% of the respondents were in agreement with the statement. Only 4% disagreed whilst 12% were undecided about the impact. Lastly, 72% of the respondents agreed with the statement that galamsey has resulted in high food costs in the community, with 40% strongly agreeing and 32% agreeing respectively. 20% of the respondents were undecided about the statement.

The results showed that the majority of the respondents were in complete agreement about the negative impact of galamsey on agriculture. From having access to land, the cost of land, increment in the prices of food, and the fertility of the land, respondents gave various explanations and reasons why it affected them negatively. From the results, respondents are seen complaining about how galamsey has taken over their farms and lands. Agriculture is an activity that is greatly valued by the local people. In most Ghanaian rural communities, it is the main economic and livelihood support system. Losing farmlands to galamsey is affecting the food production in the community and country at large. Table 3 below contains a summary of the results.

Table 3: Results for the impact of galamsey on agriculture

| Statements | Likert Scale | Frequency | Percentage |
|--|---------------------|------------------|-------------------|
| Galamsey has made access to land difficult | Strongly disagree | | |
| | Disagree | 2 | 8 |
| | Neutral | 1 | 4 |
| | Agree | 13 | 52 |
| | Strongly agree | 9 | 36 |
| | | | |
| Galamsey has increased the cost of land for agriculture | Strongly Disagree | | |
| | Disagree | 1 | 4 |
| | Neutral | 3 | 12 |
| | Agree | 11 | 44 |
| | Strongly agree | 10 | 40 |
| | | | |
| Galamsey activities have reduced the fertility of agricultural lands | Strongly disagree | | |
| | Disagree | 1 | 4 |
| | Neutral | 5 | 20 |
| | Agree | 13 | 52 |
| | Strongly agree | 6 | 24 |
| | | | |
| Galamsey has increased the prices of local food | Strongly disagree | | |
| | Disagree | 2 | 8 |
| | Neutral | 5 | 20 |
| | Agree | 8 | 32 |
| | Strongly agree | 10 | 40 |

Source: Fieldwork Ali, 2021

4.2.2 Access and cost of land

Most of the respondents noted during the interview that getting land for agriculture has become a difficult task of late. With the increase of galamsey operators in the community, most landowners preferred to sell their lands to the galamsey operators for huge sums of money. Cocoa and oil palm has been major crop grown in the community. However, the production of these crops is being traded with galamsey, hence the decline in its production. According to the respondents, Cocoa production has declined significantly due to the loss of land and destruction by galamsey operators. Some respondents said illegal miners, after failing to convince farmers to sell their lands, go into the forests at night and commence their operations. One of such farmers explained;

'I was approached by two (2) elders of this community on behalf of a Chinese miner to sell my 3 acre Cocoa farm, but I declined and told them I was not interested. A week later, I visited the farm and realized they had commenced operations and had already destroyed more than an acre of my cocoa farm. I was forced to sell because they will continue with the destruction and there would be nothing I could do anyway. The leaders of this community are involved in all these'. (Respondent1)

Another farmer, who had suffered that faith, also added that;

'I have two (2) acres of Cocoa farm that I harvest annually. In between, I need to grow other crops for my sustenance. It was easier to rent someone's land and either share the proceeds with the person or pay something small at the end of every month, nowadays, no one will give you their land for such farming activities, they would rather sell it to the 'galamseyers' who will pay huge sums of money and later destroy the land' (Respondent 2).

Another respondent who strongly agreed with the statement complained about how their family land was lost to galamsey operations. He said it was difficult to get land to farm on because out of the 5 acres of land belonging to the family, all they had now was less than an acre. This he said was because the land was sold to outsiders for galamsey.

The cost of land has increased as in the cases of most mining communities. The results showed a high level of agreement amongst respondents with regards to the level of increment in the cost of

acquiring land due to galamsey and its activities. Most lands are owned traditionally by Chiefs and clans in the rural communities. The clan heads and chiefs, and some individuals in some cases who own lands, prefer to sell the land to miners who can pay huge sums of money. The respondents explained how it was cheaper to buy land before the advent of galamsey in the community. One of the respondents said,

My brother {referring to the researcher} land was very cheap in this community, you could own a piece of land for as low as GHS 1, 000 in this community. Nowadays, however, the lowest price for a piece of land in this community is GHS 10,000. Yes, because the assumption is that you are going to use it for galamsey, and to be frank it is worth it for the galamsey operators'. (Respondent 3)

Another respondent also made the following remarks;

I sell my cocoa to the government once a year for a total of GHS5, 000 {10 bags at GHS500 per bag}. I struggle to make ends meet because most of the money is used to maintain the farm and pay back loans I have accrued. I sold my land to a Chinese galamsey operator for GHS100, 000. I no longer have a farm and I am completely ok with it. This is because there was no way I could ever make such an amount throughout my life as a farmer. So you see, lands are expensive now and farming is becoming less attractive' (Respondent 4)

Another respondent said that landowners are tempted to sell their lands to the highest bidder due to poverty and the galamsey situation in the community. He added that most of the galamsey operators are willing to buy the lands at a high cost from the locals. Most of the respondents made mentioned the fact that the galamsey operators usually work with the chief and elders of the community. In such cases, selling the land is the best option as refusal to sell does not necessarily prevent the galamsey operators from invading the land. It, therefore, becomes a good opportunity to sell the land and use the money for a different business.

4.2.3 Reduced land quality/fertility

Land fertility is an issue when it comes to having agricultural land closer to a galamsey site. According to the respondents, illegal miners use chemicals in processing the gold. Most of these chemicals sink into the land and also are washed over neighboring farms thereby reducing the

fertility of the land. When asked how the chemicals and water they used for washing the gold ore were disposed of, a galamsey worker said;

“We dig some of the pits specifically for washing the ore. The chemicals used are therefore found in the pits. I do agree that the land where we mine might be rendered infertile, but I do not see how that affects other neighboring lands” (Respondent 5)

Respondents mentioned how lands have been rendered infertile by the activities of illegal miners. Pits dug are left uncovered, and the lands are not reclaimed. It becomes difficult to farm on that land. In such cases, the land is too degraded to be used for any farming activity. A resident who strongly agreed with the statement opined;

‘The chemicals they use on the land are very poisonous and destroy the land. I had my farm closer to one of their sites. It was a maize farm, as I speak to you now the crops are all dead, nothing to harvest. Leaving the pits open is also one of the causes of land infertility. Most of these pits are overflowed with water when it rains and the running water containing the chemicals washes on people’s farms, destroying their crops and produce’. (Respondent 6)

4.2.4 Increasing food prices as a result of galamsey

Difficulty in getting land, reduced land fertility and the subsequent increment in the cost of acquiring land has negatively affected agriculture and agricultural produce. The decline in harvest has led to an increment in food prices in the community. The results showed that the majority of the respondents with a combined percentage of 72% agreed with the statement that galamsey activities have resulted in high food costs in the community. Only 8% disagreed with the statement. Most of the respondents emphasized the fact that the decline in harvest was due to most farmers either having to sell their lands or stopping farming due to low productivity. A respondent who used to sell cassava and maize in the community said that she had to increase the prices of her produce because the cost of cultivating had gone up, especially watering the crops. She said;

‘I know the prices are high now, there’s nothing I can do about it. I have just a plot of land left now, out of 4 plots of land. You can see (pointing to a cleared land behind her house), that it is now an abandoned galamsey site. I have to make money from the small land I have now, they

{referring to galamsey operators} destroyed the land, and they will buy the food no matter the price'. (Respondent 7)

A market woman, who sold vegetables and other items, added that one of the reasons why food prices had gone up in her opinion was that, even though farmers sold their produce at a high cost due to the low productivity, galamsey operators would buy the goods no matter the price. She added that the operators were the main target for the increase in goods and services in the community. *'They make businesses boom because honestly speaking they have money'*, (Respondent 8)

Figure 6 below shows degraded farmland abandoned after galamsey operations in the study community.



Figure 6. Degraded farmland left after galamsey operation Source: Ali Fieldwork, 2021

4.3 Impacts of galamsey on the Forest

Respondents' views were sought on the degree of impact of illegal mining on their forest and its products. Reduced forest cover, quality and not having access to NTFPs were the categories chosen. The results showed a majority of the respondents, 96% agreed with the statement that galamsey had resulted in the reduction of the forest cover, with 40% agreeing and 56% strongly agreeing. The results for the forest quality showed a majority of 64% of the respondents agreeing with the statement that galamsey activities have led to the reduction of the forest's quality. 32% of the respondents each agreed and strongly agreed with the statement with another 32% being undecided about the impact.

The results for the reduction of the flow of NTFPs showed that 56% of the respondents strongly agreed with the statement that galamsey activities had led to the reduction of the flow of NTFPs, with 32% also agreeing with the statement. Thus, a total of 88% of the respondents agree with the statement. Table 4 below shows a summary of the results.

Table 4: Results of the forest resources

| Statements | Likert Scale | Frequency | Percentage |
|---|-------------------|-----------|------------|
| Galamsey activities have resulted in loss of our forest (deforestation) | Strongly disagree | - | - |
| | Disagree | - | - |
| | Neutral | 1 | 4 |
| | Agree | 10 | 40 |
| | Strongly agree | 14 | 56 |
| Galamsey activities have reduced the quality of our forest | Strongly disagree | - | - |
| | Disagree | 1 | 4 |
| | Neutral | 8 | 32 |
| | Agree | 8 | 32 |
| | Strongly agree | 8 | 32 |
| Galamsey activities have reduced the | Strongly disagree | - | - |

| | | | |
|---------------|----------------|----|----|
| flow of NTFPs | Disagree | 1 | 4 |
| | Neutral | 2 | 8 |
| | Agree | 8 | 32 |
| | Strongly Agree | 14 | 56 |

Source: Ali Fieldwork, 2021

4.3.1 Loss of Forest

The study shows that majority of the respondents believe that galamsey has a negative impact on the forest because its activities have led to the loss of their forest. According to the respondents, the deforestation rate has increased significantly since the boom in galamsey in the community. According to the respondents, the presence of the forest benefits them in diverse ways. It supports them by providing some relief and livelihood support. To lose the forest therefore to galamsey is a huge problem for the local people. The locals displayed their unhappiness towards the use of the forest, especially by the Chinese. The local people, even those involved in galamsey do not enter the forest on Wednesdays, as according to their traditions it is a sacred day. However, the Chinese owners of the pits do not care about that and work on those days. Some people feel very offended by this act and believe it leads to bad consequences for the community.

During the interviews, respondents made mentioned the fact that the community, even though still had some of its forests, the rate at which the forest was degraded and its quality significantly declined was alarming. They said most of the old trees have been cut down. The hunters in the community are most affected directly. A respondent said the loss of forest cover has greatly affected him and his family. He emphasized by saying,

'I have been a farmer all my life, I grow crops and hunt at the same time. Due to the loss of forests now, there are no animals to hunt. All the animals have fled because their homes have been destroyed. Hunting has been a part of my family's culture for decades, it is a very important source of food for my family, but now it's gone. (Respondent 9)

According to most of the respondents, the use of heavy excavators in the forest has been one of the major causes of forest degradation in the community. A respondent opined

'The rate at which these Chinese people are destroying the forest is serious. They do not have roads in the forest, our farms serve as their roads. In the process of transporting the excavator to the main site, they cut down hundreds of trees and destroy several farms. The excavator is a heavy machine and destroys everything in its path. {Pointing to the forest} he said, you might think the forest is intact from afar, but when you enter the forest, you will realize it's a disaster'.(Respondent 10)

The assembly member of the community in an interview also mentioned how the forest degradation is increasing and reducing the forest cover. He said the galamsey operators cut down the trees and clear the forest to make room for their equipment. They also build small huts and in some cases wooden houses in the forest, where they keep their food items and supplies to continue with the operation. Sadly, he said, they do this on each land they operate on. He emphasized this by saying;

'They use the excavator to create roads in the forest by cutting down trees of important medicinal value, they use the same excavator to dig the trenches for the mining. After mining the gold, they leave the pits open. They do not close the pits and unfortunately, it sometimes becomes deadly. The pits are filled with water when it rains and kids sometimes are found swimming in the pits. A six (6) year old kid sadly lost his life when he fell in one of those pits {pointing to the pit}. This was a very sad day for us in this community. What was once a beautiful forest is now a death trap for our children'. (Respondent 11)

Figure 7 below shows a Galamsey site in the study area.



Figure 7: A galamsey site in the forest. Source: Ali Field data, 2021

4.3.2 Reduced flow of NTFPs

NTFPs are very important in rural communities as they serve as a source of medicine and food. Picking NTFPs is a part of people's lives and not getting those presents a problem for the rural people. The loss of the forest, NTFPs, and such trees of medicinal importance angers most of the respondents, especially those who rely on them for survival and healing. During the data collection, it was observed that there was not an operational hospital or clinic in the community. Even though there was a completed hospital building in the community, an interview with the assembly member revealed that the hospital had never been operational. According to him, efforts to get a single doctor or nurse to work in the hospital had proven futile. Most people in the community rely on the herbalists {local herbal doctors, as they are often referred to in Ghana}. Herbal doctors are those who cure diseases and ailments using herbs, trees, and their components from the forest. The respondents expressed their worry, especially concerning the medicines they pick. A farmer, who doubles as a herbalist (local doctor) in the community said

'I was born and bred in this community. There hasn't been any doctor or nurse in this community for years. My father taught me how to cure sicknesses using herbs. There was a part of the forest where I used to pick herbs, tree roots, and barks as medicines, but now they have cut down all the trees, I have to go further, deep into the forest before I can get those medicines now, I am growing old, I can't walk many kilometers as I used to before. You can see {pointing to the

government hospital building} there are no doctors or nurses, the people rely on me and I am not able to help them due to these galamsey people'.(Respondent 12)

Medicines are not the only thing picked from the forest. Most of the respondents mentioned snails, mushrooms, and firewood as some of the items they used to pick from the forest. One of the respondents whose wife used to pick and sell mushrooms during the interview said

'Firewood and snails were easy to get in this part of our forests, in fact, my wife used to sell mushrooms in the market on market days, and now we don't even get some to eat not to talk of selling them. The forest has been cleared, they destroy everything and you can't even see a single snail or mushroom to pick' (Respondent 13).

The loss of forest cover has resulted in the loss of biodiversity. Loss of NTFPs and forest degradation, uncovered pits have also led to the reduced quality of forest in the community.

4.4 Impact of galamsey on water bodies

With regards to the impact of galamsey on their water bodies, all respondents strongly agreed with the statements 'galamsey has polluted both our rivers and drinking waters (wells, boreholes, etc.), with 100% strongly agreeing. From the results of the study, this seems to be a priority area for the residents hence, its continuous destruction is a major problem in the community. Table 5 below presents the results of the negative impact of galamsey on their water bodies.

Table 5: Results for water bodies

| Statements | Likert Scale | Frequency | Percentage |
|--|---------------------|------------------|-------------------|
| Galamsey has polluted our rivers and streams | Strongly Disagree | - | - |
| | Disagree | - | - |
| | Neutral | - | - |
| | Agree | - | - |
| | Strongly agree | 25 | 100 |
| | | | |
| Galamsey has polluted our drinking waters | Strongly Disagree | - | - |
| | Disagree | - | - |

| | | | |
|--|----------------|----|-----|
| | Neutral | - | - |
| | Agree | - | - |
| | Strongly agree | 25 | 100 |

Source: Ali Fieldwork, 2021

The study revealed the local people are struggling with finding portable water for drinking. Farmers especially have been affected by this issue. It can be seen from the accounts of some farmers from the results that the rivers in the community served as irrigation for some farms, but for the pollution of the waters, the farmers have had to rely on buying water to irrigate their farms. Failure to get access to the rivers affected their farms negatively. According to the respondents, all the benefits that came with the presence of rivers such as fishing and irrigation were lost. Respondents noted with worry, how the pollution of the rivers, streams, and wells was affecting them negatively. A respondent noted that irrigation was a very important aspect of farming and a good harvest largely depended on a good irrigation system. She said during the interview

'I used to be able to water my crops anytime because my farm was closer to the river, it was very easy and convenient, I never worried about rain. Now, I only depend on the rain to water my crops, no rain means low harvest. I cannot buy a tank of water to water my crops every day, I don't have the money to do that'.(Respondent 14)

The respondents said the river in the community was very helpful as it helped both farming and other activities. It was a good source for fishing in this community. A respondent said

'It was nice to be able to catch fish in the river. I would on my way back from the farm catch some fish for my family. It was so easy and nice, I never for once bought fish with my money, I always had them from the rivers. (Respondent 15)

According to the respondents, they used the river for washing their clothes and bathing, building, and many other activities. With water bodies polluted and dried up in some cases, the respondents said they depend on buying water from tank drivers for such activities. During my visit to one of the galamsey sites, I observed the operation was near one of the rivers in the community. It could hardly be noticed as a river due to the level of pollution and the state it was

in. There was an abandoned pump in the river and it was muddy (Fig 8 below). During my interview with the assembly member of the community, he mentioned how that particular river was the main source of drinking water for the community. He also said that it used to stretch through people's farms and was used to water crops on the farm. He said the water was used by all community members for different purposes when it was clean and safe for drinking. In an interview with the secretary of the community's committee, he explained that there was not a single borehole available for drinking in the community. He said that efforts to get a borehole have proven futile as the water that is pumped is also polluted and unsafe for drinking. The respondents said they resort to buying sachet water. This is what they use for cooking and drinking, and in some cases, bathing. A respondent explained

'The most troubling of all the problems with galamsey in this community is the pollution of water. Sachet water is what we use for everything in this community. In some cases, we need to use it to get a freshwater bath'. (Respondent 16)



Figure 8. Polluted river due to activities of galamsey in the study community Source: Ali fieldwork, 2021

4.5 Ban of galamsey and its impact on resources and livelihood

This section presents the results of the impact of the ban on galamsey on the ecological resources and the people's livelihood. Respondents were asked whether they agreed with the government's decision to ban galamsey. They were also asked to agree with statements that the ban on galamsey resulted in the stopping of the activity, improved their livelihood, and whether the ban reduced damage to the ecological resources. Table 6 below shows a summary of the results.

Table 6: Results showing the impact of the ban on the resources and livelihood

| Statements | Likert Scale | Frequency | Percentage |
|---|---------------------|------------------|-------------------|
| Government's decision to ban galamsey and its activities was good. | Strongly Disagree | 13 | 52 |
| | Disagree | 6 | 24 |
| | Neutral | - | - |
| | Agree | - | - |
| | Strongly agree | 6 | 24 |
| | | | |
| Galamsey in this community was stopped during the ban in 2017 | Strongly Disagree | 4 | 16 |
| | Disagree | 12 | 48 |
| | Neutral | 2 | 8 |
| | Agree | 4 | 16 |
| | Strongly agree | 3 | 12 |
| | | | |
| Banning galamsey positively impacted and reduced damage to our ecological resources | Strongly Disagree | 6 | 24 |
| | Disagree | 9 | 36 |
| | Neutral | 5 | 20 |
| | Agree | 5 | 20 |
| | Strongly Agree | - | - |
| | | | |
| Banning galamsey improved our livelihood | Strongly disagree | 14 | 56 |
| | Disagree | 11 | 44 |
| | Neutral | - | - |
| | Agree | - | - |
| | Strongly agree | - | - |

Source: Ali fieldwork, 2021

4.5.1 Agreement with government's ban of galamsey

The results showed most of the respondents disagreed with the decision of the government to ban galamsey and its activities. From the results, 52% strongly disagreed, 24% disagreed whilst 24% strongly agreed with the statement 'I agree with the decision to ban galamsey'. The results show that the majority of the respondents do not agree with the government on the ban of galamsey in the community, despite their acknowledgment of the negative impacts it has on their ecological resources. The few that agreed with the government's decision to ban however criticized the way the whole process was done. One of the respondents, who strongly disagreed with the government's decision in his explanation, tied the reasons to the lack of job opportunities in the community. The only job they could do is either farming or galamsey. He emphasized that a farmer who has lost his farm to galamsey may not have an option for survival but to engage in galamsey since there are no jobs in the community. Banning the activity therefore to them meant sentencing them to death by hunger. The people's involvement in galamsey has therefore been tied to the unavailability of jobs and the unemployment situation in the community. Respondents during the interviews cited their reasons for the choice of answers they chose during the survey. A farmer, during an interview, said that banning galamsey made the issue worse. He said that this has created more problems, in addition to the already existing problems of galamsey. He opined that;

'Banning the activity has made it worse. The operators have now doubled their operations in this area and are now mining day and night. They do this to get as much gold as they can before they are arrested or chased by the government officials'. (Respondent 17)

During my interview with the galamsey operators at the site, an excavator operator confirmed this by saying

'I used to work 3 days a week but ever since this ban was put in place, I have been working 6 days a week on different sites. The demands for excavators have increased suddenly because all galamsey operators want to mine as much gold as they can' (Respondent 18)

Speaking with a pit owner, he said that banning galamsey was in his opinion, a strategy for the government to prevent them from working and give all the licenses and concessions to the Chinese. This he said was the view of him and several pit owners in the area, therefore they

decided to take as much gold as they could before the government soldiers caught up with them. He said in the interview;

'Before the ban, we were optimistic that our licenses would push through and we had hopes that the government would help us get the licenses. Banning galamsey, to us, means that they {referring to the government district office} have no intention of helping us. We will not sit here and do nothing, whilst the Chinese are allowed to mine on our lands just because they say they have papers, we will double our activities for the government to know that this was a bogus decision'(Respondent 19).

Some of the respondents said their disagreement stemmed from the fact that the government's reason for banning the activity was a lie. According to one of the respondents, banning the activity to come up with a sustainable form of mining and giving licenses to ASM operators was a hoax. He said the following;

''We have applied for licenses years ago, and some of us have even paid the huge amount of money they requested. We have done everything but still, they haven't given us the licenses. We however see the Chinese being given concessions and licenses every day. Till now, most Chinese are operating and they don't arrest them, we are their targets. So yes, we don't believe they are banning galamsey to help us because they don't respect us'' (Respondent 20).

Some of the respondents were also of the view that banning the activity was the right move by the government. A farmer during the interview asserted;

'I believe it was very good that this activity was banned. The destruction to the environment is too much. Did you go to the galamsey site? Have you seen what is happening to our land and water bodies? {Asking the researcher}. I completely agree with the decision to ban and I hope the government does everything in its power to maintain the ban'. (Respondent 21)

Another farmer responded by saying it was good the government banned the activity. This she said hopefully would encourage all illegal miners to get licenses and practice the activity safely to reduce the damage to the environment.

4.5.2 Effect of ban on the practice of galamsey

With regards to whether respondents agreed that galamsey and its activities were stopped during the ban, the results showed that 16% strongly disagreed, with 48% disagreeing with the statement that galamsey activities were stopped during the ban. A majority of the respondents totaling 64% were in disagreement with the statement. 28% of the majority agreed with the decision whilst 8% were undecided. Among respondents who strongly disagreed with the statement that the ban stopped galamsey was a farmer who said the following;

'This ban did not prevent them from mining, if anything it provoked the miners. Arresting and destroying some of their equipment made them angry. I see them work all the time when I go to the farm'. (Respondent 22)

Another respondent said banning the activity in his view did not stop galamsey completely but rather their times of operation changed. He said

'They used to go in the morning till evening but now they have shifted their operations to mostly at night. They go at night and come back at dawn. They do this to escape from the soldiers and police who sometimes come on patrol during the daytime' (Respondent 23).

During an interview with the galamsey workers, they said that their operations have not ceased. They said it has become difficult and rather expensive to operate now since they have to secure equipment to help them operate at night. A pit owner added that it is expensive because the soldiers and police do visit them frequently during this period to extort money from them, He explained by saying

'This is now a big business for them. They {referring to the soldiers} come to the site sometimes to take bribes and allow us to work. If you pay, you are allowed to work but if you don't, you will be made a scapegoat and arrested. We have therefore increased our operations to get more money so we can pay them and work in peace' (Respondent 24).

Some of the respondents also believed the activity was minimized during the ban. They said galamsey operators were no longer destroying their farms like they used to. The majority of the respondents believed stopping galamsey was a difficult thing, not only because the people

survived on it but also because the issue had been politicized. According to the respondents, the government is allowing the party members and other executives to continue engaging in the work. This has provoked many 'galamseyers' to also continue with the work. One of the respondents who work at the galamsey site as a washer said,

'How can we stop the galamsey when the government has allowed its party members to mine whenever they want? How can the government expect us to stop mining whilst they are doing it themselves? We didn't stop and we won't stop now'. (Respondent 25)

The assembly member of the community in his interview said the ban in his opinion did not stop the galamsey. He emphasized that the reason for the failure in his opinion was the failure to include the local people in the decision to ban the activity. He added that the people did not stop the activity because most of them were angry and felt betrayed by the government they claim they voted for.

4.5.3 Impact of the ban on the ecological resources

According to the government, one of the reasons for imposing the ban on galamsey was for the most part to help reduce the damage the activity was causing the ecological resources.

Respondents were therefore asked whether they thought placing a ban on galamsey helped to reduce the damage to the forest, agricultural land, and water bodies in the community. The results showed the majority of the respondents disagreed with the statement that the ban on galamsey reduced damage to the ecological resources with 24% strongly disagreeing and 40% disagreeing. Only 20% agreed that the ban helped to reduce the damages to the environment with 20% of respondents not sure whether it was true or not. The respondents who disagreed made references to the status of the farms and water bodies in the community. They said they still do not have drinking water, and the river was still muddy and polluted, showing signs of galamsey activity. One respondent said,

'The 'galamseyers' did not stop the activity, how can the water be clean? The forests are still being cut down and we have lost our farm, that is the current status, my brother. They {referring to the government} should come up with a different and effective way of protecting our resources but not this ban' (Respondent 26)

Most of the respondents who disagreed with the statement explained that, during the initial stages of the ban, the miners halted their operations out of fear. However, when they saw that the Chinese were operating in the forest, they also gathered the courage to continue with the mining. This is why, according to them, there was no reduction in the destruction. One respondent said;

“We were expecting the water bodies to clear and most importantly to see the excavators moved from the sites, unfortunately, that wasn't the case. So far as I'm concerned, the water is just muddy, beyond pollution and as for the forest, you can go and see it for yourself, I understand why nothing changed because the activity never really ceased” (Respondent 27)

Another respondent opined,

‘Honestly, I thought after the ban the government officials were coming to help us reclaim the lands by closing the pits left opened by the galamsey operators. They did no such thing. I would even say the ban negatively affected the use of the resources because the galamsey operators were now mining everywhere ‘rough rough’, {a common term used in Ghana to mean haphazardly} they became very greedy and angry’ (Respondent 28)

4.6 Impact of the ban on livelihood

From the results, the majority of the respondents disagreed with the statement that the ban on galamsey had led to the improvement of their livelihood, with 56% of the respondents strongly disagreeing and 40% disagreeing. The results showed that the ban placed on galamsey had many negative impacts on the people's livelihood, especially during the first three (3) months of the ban. Respondents were asked what the impacts of the ban on their livelihoods were. The respondents explained that most of their livelihood in the community depended on both galamsey and farming. Banning galamsey made life very difficult for them. During the interviews, it was discovered that some of the farmers were also involved in galamsey activities. One of the farmers opined that,

‘Farming is no longer able to support me and my family. I took up a job as a digger with the galamsey operators to earn something daily, I use that money to supplement whatever proceeds I get from the farm. Banning the activity became a source of worry for me and my family.

Depending on the farm alone is now impossible. I may get what to eat with my family, but I won't be able to take my children to school'. (Respondent 29)

Another respondent explained that during the first 3 months, the operation vanguard soldiers were patrolling the community and forest almost every day. This scared most of the galamsey workers and halted the operation for some time. He said,

'My brother, life was very difficult for me and my 7 kids. Our pit owner was arrested and so there was no mining going on. Sometimes I would borrow money from the assembly member just to be able to buy 'Koko' (porridge) in the morning for me and my kids. So you can imagine my excitement when he {referring to his boss} told me we were resuming work on the site at night, I was so happy and willing to do anything to make sure my kids never go hungry again' (Respondent 30)

A woman who's been running her shop in the community for over five (5) years mentioned,

'I honestly closed the shop for a while, like one month. This is because you can see {pointing to some objects in front of the shop}, all these are bought in large quantities by galamsey guys. The boys were scared to do mining during the initial stages of the ban, they were therefore not spending as much money as they used to. I had ordered all these stuff for them, it's their usual supplies, I couldn't sell them and I had no way of recouping my money, but, as soon as they started mining again, all these items were bought in 3 days and I have resumed business as usual since then' (Respondent 31)

In an interview with one of the pit owners, he said putting a ban on the activity affected their earnings. He explained that, before the ban was announced, he was investing most of the profit in expanding the mining and recruiting more people, he however said, he had to pay more bribes to keep the activity going. He said,

'I pay the soldiers money every weekend to keep mining, this is draining me, hence I have even reduced the salary of the workers and they also understand. If we want to continue mining, then we have to pay these soldiers. I am still making some money but I tell you, most of it is paid as bribes, I thank God though, at least we can still eat'. (Respondent 32)

During an interview with one of the farmers who rented her Cocoa farm to the galamsey operators, she said that some landowners like herself, do not sell their lands completely to the operators but rather take their commissions weekly. She said she depended on her commission from the galamsey operator. She said,

'I gave out my land for a 10% share of whatever gold they get from the land, and I receive the money weekly. Even though I don't have any job or source of income apart from this commission, I am able to pay my son's tuition; he is studying at the university. When the 'gala' {another short form of galamsey commonly used in the community} people stopped working, I stopped getting any money and it was very difficult for me. So yes, as for the gala, if they ban it, we will all die in this community' (Respondent 33)

Some of the respondents were of the view that, whilst the ban on galamsey activity made life and survival difficult for them, some people benefited from their sufferings. In an interview with one of the miners, he explained how the ban had changed his life. He said he sold the family land, a total of five (5) acres, and borrowed money from his friend who lived in the United States of America to buy a used excavator. He explained how his excavator was seized, hence not able to earn any living from his work as an operator anymore. He said,

'I think I am the most affected by the ban in this community. They seized my excavator and sent it to the district office. That was my only source of income and they took it away from me. I have gone there several times to beg them to give it back to me, but all my efforts proved futile. The last time I went there, the excavator was not parked there, another friend told me my excavator was in the forests of another district, being used for the same galamsey activity. You see why we never trust the government and why this issue turns bloody sometimes {with tears rolling down his cheeks}, they take your livelihood from you, then they continue to expand theirs. Now I am working as a washer, anything to help me survive' (Respondent 34)

Another respondent angrily asserted,

'We are now living like rats in our community, our motherland. You {referring to the Chief of the community} connived with the corrupt government officials and the Chinese to do galamsey here, they come and buy lands and destroy our farms. Fine, we decided to join them to mine too,

you say we are criminals and that we should stop mining, whilst you allow your people to continue operations. I used to work as a washer at the galamsey site in the afternoons and work as a watchman (security guard) in Bekwai during the night, now I have stopped that job because I need to do my galamsey job at night, so you see, I have lost another source of income because of this foolish ban, that's what happens when you have greedy people as leaders in a community'. (Respondent 35)

According to the respondents, most of the income-earning activities in the community surround galamsey. They said that galamsey employs many people from the community, providing different kinds of work and services. The work included watchmen (those who stood by the roadside to report any police activity to the boss), diggers, washers, and carriers. They revealed that on sites that have bigger operations, excavator and grinding machine operators, cooks, and accountants, are among the employed. According to them, most of these workers are paid daily wages which they use to support their families. The study revealed that most members of the community have at least one person in the household involved in galamsey. In such instances, according to them, the galamsey worker in that family usually takes care of the financial situations, even if the other members are farming. They clarified further that, even shop owners and other petty traders are dependent on the galamsey workers for their daily sales. One such respondent, who sells food at the community center remarked,

'I come out here as early as 6:00 am so I can sell to the students. After that I sit here the whole day waiting for the gala boys, when they come, they will buy everything in less than 30 minutes. I therefore mostly rely on them to sell my food when they come back from the site. In some cases, they call me to bring the food to the site since they may be late. Business is good with galamsey in operation. I cook almost half a bag of rice (50 cups) daily and it will finish. During the ban, I used to cook just 10 cups, and even with that, I used to struggle to sell all of it. Now it seems they are working again but they come late in the evenings to buy the food, either way, am glad my business is getting back on track' (Respondent 36)

During an interview with the assembly member, he said that the community members shifted swiftly from farming to galamsey for the past 5 years. This in his view, is the reason why banning the activity affected the livelihood of the people that much. He said that most farmers

also use the money they get from galamsey to buy fertilizers and weedicides for their farms. Preventing them from galamsey means blocking both their livelihood from farming and galamsey at the same time. Another farmer with similar views also said,

'Even though I am a farmer, two (2) of my children are doing gala, they buy fertilizers and other chemicals for me to use on our little farm. The farm feeds us all but they sustain the farm until it is ready to be harvested, I mean the Cassava and vegetables. Until then I depend on them to support the household for the time being. It was very difficult for us all when they stopped going to the site, life would have been too difficult if they had not started work again. (Respondent 37)

5 DISCUSSION

This chapter discusses the findings of the study. It explains the meanings and implications of the study findings. The discussion is done in four (4) sections. The first section talks about the perceptions of rural people on the impact of galamsey on agriculture and how that perception leads to conflicts. The second section discusses perceptions of rural people on the impact of galamsey on the forest and the third section talks about the perceptions of rural people about the impact of galamsey on their water bodies. The final section discusses the views and perceptions of rural people about the ban on galamsey and its impact on their livelihood and use of ecological resources. In this section, I explain the results drawing from the literature and the environmental conflicts theory from chapter two.

5.1 Perceptions of respondents on impact of galamsey on Agriculture

The study assessed the perceptions of respondents about the impact of galamsey on agriculture. The areas assessed included difficulty in getting access to land, high cost of land, reduced land fertility, and high food cost. Generally, the respondents perceive galamsey to have a negative impact on agriculture and its activities in the community. The respondents mostly agreed that galamsey has made getting access to land difficult, leading to the increment in prices of agricultural land and the cost of food. Also, the reduction in the quality of the land was attributed to galamsey. The implication of this is that farming is generally becoming very expensive to engage in since farmers have to compete with galamsey operators for land. Galamsey operators in the community buy lands at very expensive prices for their gold mining activities. Also, the lands available for farmers for agricultural use are losing their fertility due to the activities of galamsey. This phenomenon is gradually making farming unattractive to the youth especially, and it discourages them from continuing their farming activities.

As noted by Boateng et al. (2014) that agricultural lands have been taken over by miners in mining communities in Ghana. Losing agricultural lands to galamsey poses a bigger problem for almost every Ghanaian because it leads to food shortages and incremental increases in food prices in the markets (Abugre et al, 2021; Banchirigah, 2008). With many Ghanaians complaining of economic hardships in the country, increases in food prices make life difficult for the people. Farmers are abandoning farming and shifting to galamsey, thereby reducing the

agricultural output. Aryeetey et al (2004) mentioned that the destruction of farmlands owing to mining was common in Ghana where mineral exploration activities had gained deep roots. Owusu and Dwomoh (2012) concurred, and added that many mining areas such as the Ashanti, Western, and the Brong Ahafo regions which are known to contribute significantly to the country's food production, are recording low food due to the conversion of farmlands to both mining concessions and galamsey. Furthermore, a study by Danyo and Osei (2016) made similar assertions that the destruction of ecological resources such as farms leads to food shortages which threaten food security. My study showed that a majority of the respondents agree that galamsey activities have resulted in low land fertility, which eventually leads to lower crop yield. The results showed a majority of 72% agreeing that galamsey activities have resulted in the increase of food prices in the community. The results of this study are in line with the assertions of the scholars.

As evidenced in the results, the respondents seem to worry about the increasing cost of land and its accessibility in the community. This results in farmers abandoning farming for galamsey. As farming is becoming expensive in the community, farmers who are unable to cope with the sudden increment in land prices and loss of farms due to irrigation purposes (to be discussed below), are tempted to join galamsey to be able to provide for themselves and their families. Most of them join galamsey activities not because they are ignorant of its ecological destruction, nor for selfish reasons, but survival. Hilson and Banchirigah (2007) made similar comments that farmers who lose their farms have very limited means for survival, and therefore resort to illegal mining, which provides the quickest means of securing income in Ghana's informal economy (Boadi et al, 2016). Rural people in Ghana have lived and depended on subsistence agriculture for decades and are therefore used to picking food from their farms and gardens as opposed to buying everything. Such a major shift from self-sufficiency as a farmer to a galamsey worker, dependent on purchasing food from markets with fluctuating prices is difficult. This leaves most of the farmers wishing to return to farming. Returning to farming, however, becomes impossible due to the occupation of lands by galamseyers. Hilson (2012) asserted that, farmers who join galamsey would rather prefer their farming-based livelihood as compared to the money they get from galamsey.

Decreasing soil fertility in various areas may be another reason some farmers decide to turn the land into a galamsey site for local mining. They may not have excavators or grinders but result in the old age galamsey practice of using pickaxe, shovel, and simple tools. Most of the respondent's however alluded to the cause of loss and conversion of agricultural land to galamsey sites to the coming of the Chinese into the community. The respondents believe the presence of the Chinese resulted in the boom of galamsey in the community due to the new technology they brought with them. The Chinese have been known to provide support and technical knowledge to local galamsey operators. Previous research suggests Chinese leaders and elites rent out excavators, tractors, and generators to other local galamsey operators (Aidoo, 2016). Also, as discussed above, they collaborate with locals to secure licenses for operations, where they provide logistics, training, and resources for the excessive mining of the gold (Chengcheng, 2013).

The presence of the Chinese illegal miners in the Ghanaian rural communities and their collaboration with local authorities lead to increasingly hostile media coverage of illegal Chinese miners and the instances of local conflict that occurred (Crawford et al. 2015). With the influx of the Chinese and its precipitation of heavy galamsey practices and conflicts in the communities since 2013, galamsey has drawn negative media attention. This negative attention has affected the local galamsey operators, whose actions are not separated from that of the Chinese. The implication of this is that these farmers-turned-galamseyers are now tagged as criminals and their activity is frowned upon. This stands out as a major conflict between farmers turned galamseyers and the people in the community who are against galamsey.

There have been conflicts between farmers who are losing their agricultural lands and the Chinese miners who seem to be taking over. Also, farmers blame the Chiefs of their communities for their predicaments. The allegation by some respondents that the Chinese have connived with the Chiefs and elders to gain access to lands and resources in the community is another factor contributing to the negative perception and conflicts in the community. Estimates suggest that more than 80% of land in Ghana is under the control of chiefs, which implies that most mining operations occur on lands owned or sold by chiefs (Abdulai, 2017). Also, the land ownership in Ghana is such that the traditional Chiefs are the owners of the land. They can sell the land to whomever they want without any system in place to prevent or check their actions.

Currently, in Ghana, Chiefs are under attack by both the government and the general population concerning the selling of lands to Chinese miners. In some communities, the youth clash with the Chiefs and other elders in the community to prevent the coming of the Chinese. Andrews (2015), in his work titled {digging for survival}, made similar comments about the involvement of the Chinese and their collaboration with the Chiefs of the mining communities.

The perception that the Chiefs are abusing their powers in allocating the community's resources to outsiders is one of the main causes of conflicts in the community. The environmental conflict theory by Robbins (2019) purports that the power to decide the control, allocation, and access to resources and their use is a major cause of environmental conflicts in societies. The rural people have been denied access to a common pool resource in the community, which in this case is the land, but outsiders such as the Chinese and other powerful Ghanaian actors have been given access to it due to corruption and marginalization of the poor. This is also evidenced in the study where rural people engaged in galamsey were arrested and prosecuted whilst Chinese galamseyers were protected by people in power. This creates lots of tension between farmers who are losing their lands and the outsiders who have been given access to mine on their land.

The government's core responsibilities include the protection of the environment and all natural resources and ensuring their sustainable use. The people on the other hand need to use the resources. Conflicts can occur between those who want to use and those who want to protect a resource; or increasingly, between those who make decisions on resource allocation and use, and stakeholders (Jackson et al, 2004). The government's efforts to protect the resources by banning, arresting, and burning the equipment of those involved in galamsey did not work because the people in the community are faced with unemployment and economic difficulties. Although the activity is destroying the environment, the people still engage in it. According to Sabatini (1998), 'people, particularly the poor, are prepared to accept economic development, despite the risk of environmental degradation and the impact on their quality of life caused by development projects'. Therefore, according to Jackson et al (2004), while social and political linkage increases the complexity of environmental conflict, the economic and social priorities of people can also become a hidden issue in environmental conflict.

According to the environmental conflict theory, propounded by Perkins et al (2005), environmental conflicts emerge from either the depletion of resources through social processes of land enclosure or privatization of services distribution issues, at the expense of the most marginalized social groups such as the rural communities. Before the advent of the Chinese influx, farmers in the community had access to agricultural land without competition, even though galamsey was being practiced in the community. There was enough land available for both activities. The perception developed by the people that the Chinese are responsible for the loss of agricultural land is probably because galamsey has been practiced in the community for years, without any significant impact on farming such as displacing farmers or destroying lands. It was mostly underground mining on a piece of land that could be shared by ten (10) people. However, using excavators, Changfan machines, and deadly chemicals such as mercury, introduced by the arrival of the Chinese miners, has changed all that. In 2013, it was estimated that approximately 50,000 Chinese citizens had immigrated to Ghana to participate in mining (Crawford et al. 2015). They used these tools and materials to maximize production and increase profits. This gave them the financial power to be able to buy farmlands and convert them to galamsey sites as discussed earlier. In this case, the influx of these technologies coupled with a spike in international labor migration has significantly shifted the balance of land tenure and land management, resulting in environmental conflicts and additional secondary effects.

One secondary effect is that the local galamsey operators are stuck in a cycle of poverty due to the lack of modern-day equipment such as excavators, pumps, grinding machines etcetera with which to maintain competitiveness in galamsey activities. They are unable to increase their production and therefore are stuck with producing small amounts of gold that results in the payment of average salaries. These salaries are only used for feeding families and not enough to invest in other businesses or increase their production. The traditional Ghanaian way of mining could be considered a form of sustainable use of the resource, since generally miners only take what is needed to take care of themselves. This assertion of sustainable use of the gold due to the poverty cycle is however difficult to apprehend because the local galamseyers have the intention and need to maximize production; they are just unable to do so because of issues of equipment and cost of new technology. Also, getting enough money to engage in a different form of trade would mean that they would have another source of income that could probably lead to them abandoning galamsey. As noted by Banchirigah (2008), most of the farmers or youth engaged in

local galamsey do so just for survival and because they do not have any alternative form of employment and livelihood.

In order to gain a competitive advantage or escape the cycle of poverty, many farmers or local galamsey operators either join forces with the Chinese galamseyers for better salaries or sell their lands to them for large sums of money. Others have engaged in open fighting demanding the Chinese leave their land. Serious conflicts have been reported in the past between locals and Chinese galamsey operatives that received global media attention (Aidoo 2016). An example of such conflict is evidenced in this study where a clash between a farmer and a Chinese galamsey operator resulted in the loss of the farmer's arm.

5.2 Perceptions of respondents on impact of galamsey on the Forest

The study assessed the views of respondents about the impact of galamsey on forest resources. Reduced forest quality, cover, and NTFPs were the topics covered in the study. In general, the respondents view galamsey as having a negative impact on their forest resources. The forest is one of the most important common pool resources in every Ghanaian community. As noted by scholars such as Banchirigah (2008), and Hilson (2012) local people in Ghana are known to build their lives around the forest because it makes their lives easier by providing products that complement other sources of income and subsistence input. Losing the forest to galamsey activities imply that the local people are losing their way of life and the benefits that come with living around the forest. Before the boom in galamsey in the community, the forest served as a home and source of nutrition and medicines for the people. They get items such as firewood, medicines, fruits, and others. These items make their lives easier in so many ways. For example, firewood is used in most rural communities instead of the commonly used Liquefied Petroleum Gas (LPG) and electric stoves in the cities. The bark, leaves, and roots of certain trees have medicinal purposes which are used for the treatment of common ailments such as cold, malaria, and other diseases. In fact a wide range of people in rural households in developing countries such as Ghana, meet some part of their nutritional, income, medicinal, energy, storage, and agricultural needs from the forests (Arnold et al, 1988; Mukul et al, 2016). However, due to the activities of galamsey, these benefits have been lost. The implication is that the people are forced to adapt to a different way of life for survival, which in their case is galamsey. As discussed earlier, this is compounded with the loss of farms.

In Ghana, almost all rural villages and communities are located around forests, and in some cases, these forests are considered sacred and a shrine in the communities. The rural people, therefore, have strong attachments and place important value on forests. These cultural and religious values connect the people to the forest. It, therefore, is not about losing the forest and the biodiversity, it transcends that to include the people's way of life and beliefs being destroyed. The loss of the forest by galamsey activities threatens their sustainable use of the forest. According to Boadi et al (2016), the activity of illegal miners in reserved forests is seen as a major threat to sustainable forest management and impacts on livelihoods of communities. Also, the spike in deforestation by galamsey activities is translated as a threat to the way of life of the people except for the galamseyers, mostly the Chinese, who continue to mine gold.

Another source of conflict is that most of the local galamsey operators have been denied licenses to operate in the forest they once benefited from. Failure to provide licenses to community members leads to conflicts because there is a clear uneven allocation of resources. As noted by Banchirigah (2008), as in all natural resources management, the unequal distribution and allocation of resources, resource appropriation by other groups, and marginalization of certain groups have the potential to ignite conflict. With the perception that the forest is a common pool resource for all members of the community, conflicts arise when a particular group is denied licenses to mine whilst others are given the permission and the necessary documentation to mine in the same forest. This action was considered unfair by most respondents, especially those who have tried to get licenses but did not succeed due to the long and bureaucratic procedures. This process is cumbersome because applicants are often illiterates (Hilson and Potter, 2003). The matter is worsened when the rural people find out that outsiders, be it non-local Ghanaians or Chinese, are mining in their forest with licenses. This leads to anger and frustration, especially when the local galamseyers only use simple tools and do not have sophisticated equipment like the others. Such misunderstandings are further complicated by the lack of communication and understanding between the rural people and the government. The government states that, all galamsey operators are destroying the forest and must be stopped, yet some are receiving licenses. Local galamsey operators, in their view, do not consider their actions harmful to the environment and disagree with the government in its approach to dealing with the issue. This leads to a strong misunderstanding between these two stakeholders groups.

The continuous misunderstandings between the government and the people have probably resulted in many more problems and conflicts in the community. On one hand, a rural community is struggling with losing their culture, identity, livelihood, and forest to an activity they feel forced to engage in due to poverty and unemployment. On the other hand, the government is trying to protect the same resource but is unable to either provide alternative employment or communicate with the people effectively. It is clear from the data that local people feel frustrated and maintain some misconceptions about the government and its intentions. The situation can further deteriorate due to government corruption. For example the people witnessed first-hand corruption practices by some of the operation vanguard officers, which enabled the continuation of galamsey in their forests. Such experiences go a long way in forming negative perceptions of the government in the eyes of the people.

5.3 Perceptions of respondents on impact of galamsey on water bodies

From the results of the study, the respondents placed a high level of importance on the impact of galamsey on their rivers and other water bodies in the community. The general perception also is that galamsey and its activities have impacted them negatively. Water pollution has often been reported as one of the negative impacts of mining (Macdonald et al, 2015). The implications of having polluted water bodies in the community are numerous, from lack of irrigation of farms (which eventually leads to loss of farms) to residents depending on sachet water for their living. All these come as a heavy financial burden to the people at a time when the Ghanaian economy is suffering and people are facing lots of hardship in the country. The impact of galamsey on water bodies is directly related to farming activities. The polluted water means farmers would have to find means of watering their crops to get a good yield. Most farmers in rural communities largely depend on nearby rivers and water bodies for irrigation to water their farms. Irrigation is the heart of farming in every community (Abugre et al, 2021). Most farmers have no option but to abandon their farms due to the lack of money to buy water for irrigation purposes. As evidenced in this study, some respondents made it clear they could not afford to buy water for irrigation purposes. In such cases, some farmers are forced to leave farming and rely on galamsey for survival, even though they know the negative impact of the activity. As Hilson (2001) noted, people associated with small-scale mining are aware of the risks involved, they however do it because they do not have work to live and survive on. In this case, their work is

farming, but they abandon it due to lack of water caused by the pollution from galamsey. As evidenced in this study, most of the farmers are also involved in galamsey to support themselves financially because of the decline in agricultural production.

Another implication of the pollution of water is that the wells in the community are also polluted. From my observations, the community does not have Pipe borne water and therefore relied on boreholes and wells for drinking. With the continuous activities of galamsey, all the wells have been polluted, making them undrinkable. The loss of farms due to lack of water and the hardship people go through also has the potential to lead to conflicts. In this case, environmental conflicts are arising from how lands are used and how pollution is controlled by the activities that stem from the use of the resources. According to Glasbergen (1995), environmental conflict is always connected to the consequences of social and economic activities that cause environmental damage. The pollution caused by galamsey in the community has been left unattended by both the galamsey operators and the government. This means that the local people are left to their faith to suffer the consequences that come with these changing conditions. They do not have the resources nor technology to purify the water since the pollution is a result of poisonous chemicals such as mercury (Kitula, 2006). The status of water pollution in the community however is reflective of the pollution at the national level.

The government of Ghana is facing problems with nationwide water pollution due to the activities of galamsey. Rivers such as Ankobra and Pra, which serve as the source of drinking water for millions of Ghanaians are polluted and rendered unsafe for drinking. With the control of water pollution at the local level becoming a difficult task for the government, the people interpret it as unwillingness to help on the part of the government. As can be evidenced from this study, the government's plan of banning galamsey to ensure the protection of the water bodies did not succeed. This is evidenced when the majority of the respondents, 60% disagreed that the ban on galamsey helped reduce the ecological damages, of which water pollution was part.

5.4 Impacts of ban of galamsey on livelihood and ecological resources

The study results showed that the majority of the respondents strongly disagreed with the statement that the ban on galamsey has improved their livelihood. Rather, it made life more difficult for them and limited their livelihood options. Also, the galamsey form-based livelihood

requires little to no education, hence, almost everybody is qualified to join. From school dropouts and those who only completed primary, junior, or secondary school to illiterates who can neither read nor write, everyone has an equal chance of making money, provided the person is strong and willing to work. As can be seen from the results, where all the respondents agreed that banning galamsey negatively affected their livelihood, this is probably because it has become their only source of income and way of survival. As a poor community, with few employment options, despite the ecological destruction it comes with, galamsey is heavily depended upon for livelihoods. The unemployment rate in rural communities is very high. According to the Africa Center for Economic Transformation (ACET), Ghana's youth unemployment problem has reached serious levels and stood at 48% in 2016. The unemployment rate has resulted in urban-rural migration, with most youth coming to the rural communities to engage in galamsey (Hilson 2012). During galamsey bans, there is no more work or economic activities to ensure rural people earn income to support themselves. Shop attendants, food sellers, and other jobs that depend on the galamsey workers for patronage are greatly affected by the bans. The lack of work by the youth and other galamsey operators means that those affected must look for alternative sources of employment and income. However, without an alternative livelihood program in the community for both farmers and affected galamsey operators, the only option they have is to remain in galamsey in secret, and risk high fines or imprisonment.

The issue and consequences of unemployment in galamsey-prone communities have been discussed by scholars such as Banchirigah (2008) and Hilson (2012). Some galamsey operators explain that lack of employment opportunities elsewhere and loss of previous jobs was the major reason for their involvement in galamsey mining (Tschakert, 2009). The loss of farms and forests, coupled with the ban on galamsey, unemployment, and the unavailability of alternative livelihood programs is a recipe for conflict in the community. Chandrasekharan (1996) suggests that the change in the quality or depletion of a natural resource such as a forest or its depletion is a source of conflict in the society. Also, conflict over access to resources, in this case, mining in the forest, is a major source of conflict. The frustration and anger are directed towards the government, on whose authority they have been denied access and use of the resource. Also, the environmental conflict theory asserts that the power to decide who to use resources and how to control pollution after the use of the resource is a source of conflict. The people, therefore,

directing their anger toward the government for their suffering is a reflection of the theory of environmental conflict.

The negative perception created also affected local galamseyers who used to mine using simple farm tools and on pieces of small lands with minimum ecological destruction. The campaigns against galamsey did not exclude them from the ban. This is probably one of the main causes of tensions between the people and the government who feel that they are being punished for the actions of the Chinese miners and other outsiders. Local galamsey operators believe the target of the government should be the Chinese miners, who they believe are responsible for the ecological destruction in the country. They do not believe their underground galamsey mining is the cause of the loss of farms and the pollution that eventually leads to the loss of other people's livelihood.

Also, some of the revenue generated from ASM goes into agriculture and farming in the community, which serves as a supplement and economic support for the family. Losing the income from galamsey meant that the support it provided farmers also ceased. Getting money to buy fertilizers, seeds and other farming essentials became difficult in such situations. This affected the subsistence farming they relied on for food.

The boom in galamsey activities in the community caused inflation leading to the increment in prices of land and other essentials in the community. Salaries paid to galamsey workers led to local sellers and business owners increasing the prices of food and other services, making life difficult for the people. Galamsey operators are perceived to be rich in Ghana. This is because the salaries they make outweigh the general salaried worker in Ghana. The local people have taken advantage of this perception to live off these miners. Most of the farmers increase their prices because their yields have reduced either due to the land losing its fertility to galamsey or not having enough land to farm on. Either way, they increase their prices to meet the high cost of living in the community and to compensate for the loss of farmlands and lower yields. The implication of this is suffering for the general population in the community. It is important to note that not everybody in the community is involved in galamsey or receives high salaries. This means most of the people living in these galamsey communities have very difficult livelihoods.

From the results of the study, the majority of the respondents disagreed with the government's decision of banning galamsey. They believe the galamsey was not stopped during the ban and that the damage to ecological resources was still ongoing. The general perception is that government has failed in its quest of fighting galamsey. Also, the government is not prioritizing their economic needs and survival as a people.

The government placed bans on galamsey in 2006, 2013, and 2017. Yet, there has not been a significant improvement in the fight against galamsey and the protection of the ecological resources, due to the unemployment in rural areas and the government's approach. Unemployment in galamsey-prone communities has been discussed by scholars such as Banchirigah (2008), Hilson (2002), and Andrews (2015). According to Hilson (2017), the belief that continuous military intervention is the key to eliminating illegal ASM activity in the country further entrenches informal ASM activity. Thus, the government's approach of banning galamsey is one of the reasons for promoting galamsey in rural communities. With the current lack of jobs in the communities, the implication is that rural people will result to galamsey for survival. Relying on galamsey, which seems to be the only viable option due to the lack of jobs in the community, is the only way to help some farmers maintain their small farms and survive in the community, even though they know the negative impact of the activity, especially on their ecological resources.

The respondents in general have a perception that the government is involved in galamsey. This is one of the main reasons for tension and conflicts between them. From the results, some of the respondents accuse the government and political figures of collaborating with outsiders to mine the resources. The implication is that the people see the government as a competitor in mining the resource. They perceive the government as having a conflict of interest and therefore it becomes difficult for them to follow the government's decision of not mining in their communities. According to Amy (1987), conflicts are caused by inevitably conflicting interests of industry, environmentalists, and government. This perception is perhaps why the decision of the ban was not agreed upon and supported by the people since it threatened their livelihood. The government has not been consistent in its position about galamsey and its conflicting views. During the campaigns for the presidential and parliamentary elections in 2016, the New Patriotic Party (NPP) had promised to legalize galamsey when elected. The party ran its campaign on the

promise of making it easier for galamsey operators to secure licenses and to work without the government arresting or intimidating them. The party was supported by the galamsey operators whose activities under the then government, New Democratic Party (NDC) were illegal. However, after winning the elections in 2016, the government decided not to issue any galamsey license due to the destruction of the environment by the activity. It also decided to ban the activity in 2017 despite the promise it made to the local galamsey operators. Actions such as these, fuels the mistrust between the people and the government. Currently in Ghana, the NDC is campaigning in galamsey communities and making promises of legalizing galamsey when elected in the upcoming general elections in the year 2024

6 Recommendations and Conclusion

This chapter presents some recommendations based on the results of this study. The recommendations are meant to help solve or reduce the environmental conflicts between the ASM industry and the government. It is meant to inform the government about the opinions of local people about galamsey and how these opinions can help the government in its quest of fighting galamsey in a way that can be sustainable in Ghana.

6.1 Recommendations

From the results of this study, the following recommendations are suggested

a). First of all, the government of Ghana needs to have a dialogue and grass-root educational program with the ASM industry at the local level, both registered or not, to discuss ways to protect the ecological resources of the country. Most of the locals involved in galamsey in the rural communities mine on land and not on water bodies. They mostly engage in underground pit mining out of poverty and lack of jobs. Some respondents in the study mentioned the fact that banning galamsey in its entirety was wrong because they were neither destroying water bodies nor the forests. According to them, they are not a danger to the ecology and environment because they mine underground. They have a perception that their activities are not dangerous to the ecological resources as compared to those mining with large equipment and on water bodies. Including such people in the decision-making process, education, and prevention of galamsey on the ecological resources will help reduce the destruction, if not completely eradicate it. Most of them engage in galamsey on their lands and are against the mining of water bodies. The government can see them as allies in policing excessive deforestation and mining on water bodies especially, but this allyship must be built on mutual trust. It is therefore important for the government to involve all the stakeholders, especially local people who live near these resources, and come up with policies that will benefit all parties.

b). The government of Ghana should partner with the local people to come up with alternative livelihood programs for galamsey communities. Creating employment and jobs for the youth involved in galamsey will help the government in its fight against illegal mining. Most of the youth when given other income-earning opportunities will have no problem leaving galamsey. They do galamsey mostly because it is the only option they have. A key to success is that the

local people should be involved in the choosing of alternative livelihood programs that will benefit them, instead of the government imposing programs that are perceived as not useful or even relevant. It is recommended that the government engages with them on the type of alternative livelihood program they might be interested in, as opposed to the already chosen and drawn programs that most people do not find useful.

c). Mining licenses should be made easily accessible to community miners to regularize their activities and hold them accountable for their actions. Abolishing the bureaucratic processes and coming up with fast, easy, and affordable ways of getting mining licenses will encourage galamsey operators to go for permits, hence formalizing their activity and following the laid down rules and regulations of mining in Ghana. It is important to note that, the people have lost their faith in the government to protect them and the resource, therefore the only way the government can gain their trust is to be truthful and supportive of their livelihood. Helping them to secure licenses and giving them access to the sustainable use of the resource will go a long way in patching up the broken relationship between the two stakeholder groups.

d). Foreign nationals who are arrested for flouting mining rules should be punished and prosecuted just as Ghanaian miners. The system where foreign nationals involved in galamsey are given special treatment by some powerful people and politicians in the government is a serious recipe for conflicts and must be stopped. This way, Ghanaians will take the government seriously. Releasing Chinese galamsey offenders hours after arrests and detaining Ghanaian illegal miners only deepens the mistrust between the people and the government.

e). Political parties in Ghana should depoliticize the issue of galamsey and concentrate on finding a solution to the problem. Politicizing the issue of galamsey has made fighting and solving it very difficult. Political parties keep making promises to galamsey operators that they will formalize their activities and allow them to work. They make these promises to earn their votes, while simultaneously destabilizing the current political party. Such promises made to rural communities make it difficult for the people to follow the government's interventions. According to the assembly member in the Xanza community where this study was carried out, the ruling party had 65% of the total vote cast in the 2016 elections. In the 2020 presidential elections, the ruling party had only 51% of the total vote cast. According to him, most of the people said they

voted against the government because the major opposition party had promised to lift the ban and allow them to operate without fear of prosecution. These political party promises undermine the importance and dangers of galamsey on the environment. If the government wants the people to take its initiatives and interventions seriously, they should desist from playing politics with the activity.

6.2 Conclusion

Ghana is losing its forest resources at an alarming rate due to the activities of galamsey. The destruction of waterbodies and loss of farms have reached epic proportions. The whole country is suffering from the negative impact of galamsey, especially those living near these resources in the rural communities. Issues of galamsey in Ghana are very complicated because of its economic importance to the millions of people. The arrival and engagement of the Chinese to engage in galamsey in recent years has changed the activity and likely worsened the ecological destruction. Most of the issues of conflicts in rural communities surround the involvement of the Chinese and the governments support for their activities. The presence of the Chinese in rural communities brings about the loss of farms, destruction of the water bodies and excessive deforestation. It is obvious from the study that, the government's failure to check the activities of the Chinese, lack of provision of licenses to local galamsey operators and, failure to reclaim degraded land and to provide good drinking water has led to several conflicts in the community.

The many conflicts surrounding galamsey are contributing factors to the continuous destruction of the environment. The lack of trust between the local people and the government is a major cause for worry. Stopping galamsey would need the collaborative efforts of both the people and government. Galamsey and its activities is a proof of the mistrust that exists between the people and the government. It is obvious from this study that the people do not believe in the government to help in securing jobs, getting access to clean water or consider their livelihood first. The people do not believe in the governments intentions of trying to protect the environment. The government over the years has broken promises, protected Chinese illegal miners over local citizens, failed to prosecute powerful government officials involved in galamsey and, most importantly has not been able to provide effective alternative sustainable livelihood program for the local people. Uneven allocation of resources, the government's involvement in galamsey, marginalization of the poor local people and refusal to provide mining

licenses to local galamsey operators have contributed to significant conflicts that have resulted in the continuous destruction of the environment through the growth and boom of galamsey in Ghana. The environmental degradation from galamsey is a physical effect of the conflict between the two stakeholder groups.

6.3 Limitations and reflections on the study

I planned to do the fieldwork for this study in the summer of 2020. The sudden lockdown of countries due to the Covid-19 virus made it impossible to travel to Ghana. I had to postpone the fieldwork to January 2021 after the lockdowns were lifted. Traveling to Ghana after the lockdown was challenging because getting a flight to Ghana, was difficult because of severely limited schedules. Also, back in Ghana, the people somehow had developed the notion that those of us living in Europe were mostly at risk and carriers of the virus. There was fear among the people about meeting and talking to me. It was a bit challenging getting access to the people initially, as they feared contracting the virus. My negative corona test results and positive attitude towards them helped in overcoming this challenge. Another challenge was the fact that issues of galamsey were considered very sensitive in the community. There was a lot of tension between the local people and the government so much so that government officers were hated in the community. The ban on galamsey was still in effect when I was collecting data. This made it challenging in getting most people to talk to me because most of them were scared of getting arrested as they thought I was a government representative. It took quite some days before a trust could be established between me and them through the gatekeepers.

Another limitation is the time it took to collect the data. Due to the Covid situation, governments were shutting their borders and locking down their countries. I had to rush back because the Norwegian government had announced new border closure. Thus I was only able to stay in the community for 3 days. Staying in the community should have been more than three days to be able to document and observe the activities of the people. Another challenge was the cost involved in data collection such as fuel, food, and other logistics. Another challenge was perhaps when I had to stay in the community for 3 days continuously to finalize the data collection because the government of Norway had announced the closure of its borders. I had to quickly finalize the process so I could return to Norway. This was the time I had built trust with the people and they had started opening up and giving more information. I, unfortunately, had to

leave because of the time factor. Another challenge was the cost involved in data collection such as fuel, food, and other logistics. Finally, this study was conducted in one mining community. A comparative study of multiple communities could have resulted in a stronger and meaningful policy document for the government and other organizations for action..

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Appendix 1: Information letter to respondents

Are you interested in taking part in the research project

” (Assessing the views of local people on the impact of illegal mining on their ecological resources) ”?

This is an inquiry about participation in a research project where the main purpose is to find out the views and perceptions or understanding of local people on the subject of illegal mining pertaining to their ecological environment. Their thoughts on how illegal mining affects their water bodies and aquatic life, forest, agriculture and the environment. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

This is a master thesis project. The thesis is focusing on the views, perception and understanding of local people about the impact of illegal mining on their ecology.

Who is responsible for the research project?

Norwegian university of Science and Technology (NTNU)) is the institution responsible for the project.

Why are you being asked to participate?

The study focuses on three categories namely farmers, whose activities are affected by galamsey, the youth or workers in illegal mining and the market women/sellers of the community who are randomly selected. You have been chosen because you belong to one of the groups mentioned above.

What does participation involve for you?

The method for this study is a semi structured interview. The questions are about your thoughts on illegal mining and its impact on the land, water bodies, and forest in this community. It also asks your opinion about the ban on galamsey and its impact on the livelihood of the people.

If you chose to take part in the project, this will involve that you are interviewed. It will take approx. 45 minutes. The survey includes questions about your perception about illegal mining in this community, your understanding of ecological impact and how the ban has impacted the use of the ecological resources and people's livelihood. Your answers will be recorded electronically. I will also take notes

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you choose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

- This data will be available to me and my supervisor only

The data will be restricted to me and my supervisor only and no third party involved. Participants will not be recognized as they will be anonymized.

What will happen to your personal data at the end of the research project?

The project is scheduled to end August 2021. The collected data will be anonymized. The data will be deleted after the project is completed and will not be stored for any purpose.

Your rights

So long as you can be identified in the collected data, you have the right to:

access the personal data that is being processed about you request that your personal data is deleted request that incorrect personal data about you is corrected/rectified receive a copy of your personal data (data portability), and send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with the Norwegian University of Science and Technology, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?

If you have questions about the project, or want to exercise your rights, contact:

- Norwegian University of Science and technology (NTNU) via Dr. Elizabeth Barron, phone number +4773591963
- NSD – The Norwegian Centre for Research Data AS, by email: (personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Yours sincerely,

Ali Awudu Idriss

Master Student

Dr. Elizabeth Barron
(Researcher/supervisor)

Appendix 2: Consent form

I have received and understood information about the project assessing the views of local people on the impact of illegal mining on their ecological resources and have been given the opportunity to ask questions. I give consent:

- to participate in an interview
- To use audio recordings during the interviews
- To take my pictures during the interviews

I give consent for my personal data to be processed until the end date of the project, approximately May 18, 2022

(Signed by participant, date)

Appendix 3: Questionnaire

Assessing the views of local people about the impact of illegal mining (Galamsey) on their ecological resources (Forest, Waterbodies and Agricultural Lands).

Research questions

1. How do rural people understand the impact of illegal mining on their ecological resources?
2. What are the views and experiences of rural people about the ban on galamsey, and how has the ban affected their livelihood and the ecological resources in the community?
3. How do these views and experiences result in conflicts in the community?

SECTION 1: SOCIO-ECONOMIC DATA OF RESPONDENTS

1. Name:
2. Age:
3. Gender: A. Male [] B. Female []
4. Educational level: A. None [] B. Primary Education [] C. Junior High School []
D. Senior High School: [] E. Tertiary [].
5. Marital status: A. Married [] B. Single [] C. Divorced [] D. Widowed []
6. Household size:
7. Previous Occupation:
8. Income from previous occupation: A. Monthly B. Yearly.....
9. Current occupation:
10. Income from current occupation: A. Monthly B. Yearly.....
11. How long (years) have you lived in this community?:
12. Are you involved in galamsey? A. Yes [] B. No [] If No, move to PART B.
13. If yes, what is your role?:
14. How long have you been involved in galamsey?:

PART B: REASONS FOR INVOLVEMENT IN GALAMSEY

15. Why are you involved in galamsey? A. No jobs available [] B. Previous job not lucrative []
C. No information on job opportunities elsewhere [] D. Relatively faster returns []
E. Other (please specify):

16. Galamsey has positive impact on the community.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice
above?.....

17. List some of the benefits of galamsey.
.....

SECTION 2: IMPACT OF GALAMSEY ON ECOLOGICAL RESOURCES

AGRICULTURE

18. Galamsey has made access to land for agriculture difficult.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice
above?.....

19. Galamsey has increased the cost of land for agriculture.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice
above?.....

20. Galamsey activities have reduced quality/fertility of agricultural lands.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice
above?.....

21. Galamsey has increased the prices of local foods.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice
above?.....

22. List some other effects of galamsey on agriculture.
.....

FORESTS

23. Galamsey has reduced forest cover in our nearby forests.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice
above?.....

24. Galamsey has reduced the quality of our forests.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice
above?.....

25. Galamsey has reduced the flow of non-timber forests products.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice above?
.....

26. List some other effects of galamsey on forests.
.....

WATER BODIES

27. Galamsey has polluted our rivers and streams.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice above?
.....

28. Galamsey activities have polluted our drinking water (wells, boreholes, etc)

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree [] Reasons for choice above?
.....

29. List some other effects of galamsey on water bodies.
.....

SECTION 3: BAN OF GALAMSEY AND IMPACT ON LIVELIHOOD AND ECOLOGICAL RESOURCES

30. I agree with the government's decision to ban galamsey.

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []
E. I strongly agree []
Reasons for choice above?

31. Galamsey and its activities were stopped completely during the government ban in 2017. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []

E. I strongly agree [] Reasons for choice above?.....

32. Government's ban on galamsey in 2017 has positively impacted and reduced the damage to our ecology

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []

E. I strongly agree []
Reasons for choice above?.....

33. Ban on galamsey has improved our livelihood

A. I strongly disagree [] B. I disagree [] C. Neutral [] D. I agree []

E. I strongly agree []
Reasons for choice above?.....

