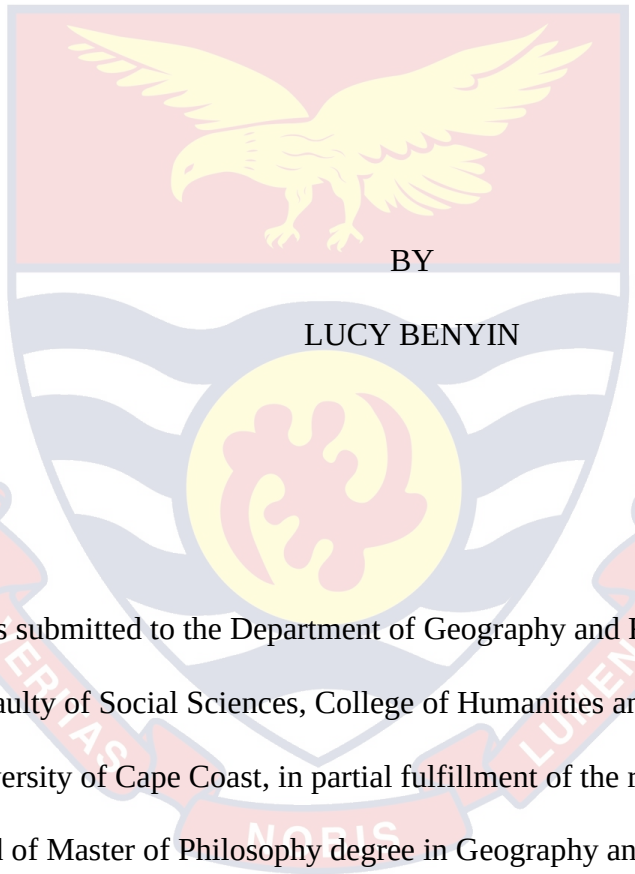
UNIVERSITY OF CAPE COAST

THE IMPLICATIONS OF GHANA'S 2017 SMALL-SCALE MINING BAN ON LIVELIHOODS: A CASE STUDY OF TARKWA NSUAEM MUNICIPALITY



BY

LUCY BENYIN

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature……Date……

Name: Lucy Benyin

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Supervisor's Signature……Date……

Name: Prof. P.K. Acheampong

ABSTRACT

The study investigated the livelihoods of small-scale miners in the Tarkwa Nsuaem Municipality following the 2017 Government ban on small-scale mining operations in the country. The study adopted the mixed-method research design. Using questionnaires, in-depth interviews and focus group discussions, data was solicited from 418 (that is 378 registered concessionaires and their labourers, 20 unregistered concessionaires and their labourers, and 20 supporting groups) respondents. The study revealed a complete dependence of respondents on the mining activities. Unemployment and the desire to acquire wealth 'quick' were the major factors that attracted people to engage in the mining even though the activities are risky. The major consequences of the 2017 ban were economic and social hardship, limited job opportunities available, and arise in criminal activities in the municipality. The study recommends to government that a ban on any social or economic activity in the country should not be done in a rush. A careful and serious debate should always be done before the imposition to avoid any adverse effects in the future.

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DEDICATION

To my late father, Mr. Benjamin Abban and late brother, Mr. Joseph Twentoh

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CHAPTER ONE

INTRODUCTION

Background to the Study

According to Quiroga (2002), there is no common definition for the term "small-scale mining" (SSM). The International Labor Organization (ILO) (1999) and the World Gold Council (2017) say that, SSM is characterized by the number of miners (that are always very few individuals), small production capacity, low level mechanization and small size capital investments. Viega and Barker (2004) also defined the SSM as an operation by individuals panning along river banks, using simple methods to extract minerals, which in Ghana are described as 'galamsey' (meaning let's gather them and sell). Barning (2002) describes the SSM as labour-intensive, in unsafe working environment, that impacts negatively on human health, while the Ghana Chamber of Mines (2002) says that it is a mining industry where operators do not hold any mining permit. In Mongolia SSM is known as 'ninja' or hand-mining, and in Tanzania, it is placer mining or informal mining. From the above, the common characteristic of SSM is that, it is a small-scale mining done illegally or with minimal government regulation (Hentschel, Hruschka & Priester, 2002).

Some mining communities develop sets of strategies and adaptation mechanisms to adjust to the changing environment using a range of socio-economic and cultural components (Cline, 2007). One of these strategies is engaging in the SSM activity.

Small-scale mining has been a significant driver of local economic development in all mineral rich developing countries (World Bank, 2013). It has become an important growing sector in more than 80 countries that produce

approximately 15- 20% of global and other metals (Buxton, 2013; World Bank 2013).

The International Labor Organization (ILO, 1999) and the World Bank (1995) estimate that, approximately 13 to 20 million people worldwide are engaged directly in the SSM activities. The Ghana Minerals Commission (2002) estimated that, in 2002, the SSM contributed 7% of the $694,970,543 gold revenue. Campbell and Pittsfield (1994), say that the SSM in the gold mining sub-sector contributed about 58% of gold revenue to the Zimbabwean government in 1994, while 68% of the Philippine's gold production in 1994 came from the SSM sector. The figures quoted above indicate that the SSM can be an important contributor to national revenue in terms of foreign exchange earnings if it is well managed.

In spite of its numerous contributions to the livelihoods of millions of people, the SSM is considered a major cause of environmental degradation and resource depletion, especially in areas where minerals such as gold and diamond are located (Agyemang, 2010). For the past few years there has been the emergence of intensive SSM activities by both indigenes and foreigners in the mineral-rich regions of Ghana. This has resulted in the degradation of the environment (Minerals Commission of Ghana, 2007).

The issue of environmental degradation and the need for people to make living out of mining have recently become controversial. The SSM activities create pollution; hence a ban is sometimes placed on the activities. In most cases it is public out-cry on the degradation of the environment that leads governments to ban SSM activities. The 2017 ban led to socio-economic implications. In 2017, the Government of Ghana placed a temporal ban on the

SSM to prevent the degradation of the environment and also reduce or prevent illegal mining. The temporal ban also stemmed in part, from the problems arising from occupational and community health hazards, safety, and environmental problems (Hilson, 2001). Farmlands were destroyed, water resources heavily polluted, and diseases such tuberculosis became common in the SSM areas. Although the temporal ban on the SSM has been lifted, people do not really know how the ban affected the livelihoods of the Small-Scale (SS) miners within that period.

The current research is on the implication of government's ban on SSM. This is important because Ghanaian governments and others elsewhere impose draconian measures that provoke violent demonstrations such as what has happened in France (19th March, 2019) recently, to regret for having imposed such measures later. Again, there have been studies on the SSM but nothing, to the present author's knowledge, has been done on any ban (especially) in Ghana. The present work is aimed at examining the resultant livelihoods implication of the 2017 ban on the SSM in the Tarkwa Nsuaem Municipality in Ghana.

Statement of the Problem

Many people depend on the exploitation of environmental resources to support their livelihood. One of such activities is SSM. Unfortunately, SSM is associated with the destruction of the environment on which other people such as farmers and fishermen depend for their livelihood. The degradation often, brings the livelihood of such dwellers in the SSM communities and beyond under pressure (Akabzaa 2000).

The Tarkwa Nsuaem Municipality is one of the areas in Ghana noted for massive exploitation of precious minerals (Hilson, 2001). The SSM has been a regular livelihood activity in this area where gold mining supports a large number of people, particularly the youth. Through this economic activity, there has been an influx of investors, banking groups, and traders to the Tarkwa Nsuaem Municipality. In spite of the monetary gains, environmental challenges have increased tremendously (Obara & Heledd, 2006), bringing about problems that affect the wellbeing of the communities. Among the problems are environmental degradation (water, air and land pollution) and diseases (that is increase in the incident of tuberculosis, cardiovascular diseases and silicosis (Hinton, 2003). According to the Guardian (2013), there was an early attempt by the president of Ghana to ban all form of SSM activities due to the proliferation of foreigners especially Chinese; whose activity led to the introduction of heavy machinery which led to wide area of lands (farmland-cocoa farms), protected forest and water-bodies being polluted This put security threat to the people of Ghana enforcing the public to call on the government to step in (Al-Hassan & Amoako, 2014).

Again, the pollution of the environment (land, water and air) became alarming such that the government has to step-in to minimize the challenges associated with the SSM, the Government of Ghana came out with a policy in 2017 to place a temporal ban on the SSM due to how some water bodies such as the Pra and the Offin River have been turned from their original state due to heavy machineries such as the excavators and bulldozers by the Chinese. However, after some month, some people called the government to lift the ban due to some challenges associated with the effect of the ban. The ban was lifted

in 16th August, 2018 for those who were engaged in rock or shaft mining. Unfortunately, though the effects of the ban affected the livelihoods to the best of the present researcher's knowledge, no data have been published or made known to the public in this regard. The present study therefore sought to investigate the implications of the ban on the SS miners and on the communities as a whole in the Tarkwa Nsuaem Municipality. It is an attempt to show-case the implications associated with a ban on public activities.

The objective of the Study

The primary focus of the study was to examine the livelihood of miners after the 2017 ban on small-scale mining activities in Ghana specially the Tarkwa Nsuem Municipality. The aim was to investigate the extent to which the SS miners' livelihoods were affected by the ban, and the coping strategies that were adopted during and after the ban.

Specifically, the study was designed to:

1. investigate the factors that attract people to the SSM.
2. identify the assets of the small-scale miners before and after engaging the mining activity.
3. explore the opportunities derived from the assets.
4. asses the effects of the ban on miners' livelihood or asset.
5. asses the livelihood strategies adopted by the miners after the ban.

Research Questions

The following research questions were considered to guide the study:

1. are there special reasons that attract people to the SSM activities in the study area?

2. which assets were available to the small-scale miners before engaging in the small-scale mining?
3. which ways did the opportunities derived from the assets help the small-scale miner?
4. how did the effects from the ban affected the the livelihood of the miners?
5. what were the livelihood strategies by the miners adopted after the ban?

The work is based on the hypothesis that:

$H_{0:}$ The ban on SSM positively affected the livelihoods of people in the study area.

$H_{1:}$ The ban on SSM negatively affected the livelihoods of people in the study area.

Significance of the Study

It is hoped that the study will become a useful working document for addressing livelihood issues in relation to a ban on any future economic activity. It is expected that the report will provide some guidelines for government and policy formulators to critically consider some of their decisions even before they are implemented to avoid public confrontations. The study will contribute to the existing body of knowledge, and will help to develop starting points for stronger understanding of the linkages between government policies, natural resource exploitation, mining companies and local level developmental issues in the country.

Delimitation of the Study

The study was limited to the implications of the ban on the livelihoods of Small-Scale miners in the Tarkwa Nsuaem Municipality. Information was collected from registered concessionaires, hired labourers (those with ticket from the registered concessionaires), non-licensed concessionaires, and their

hired labourers (those under the non-licensed concessionaires), roaming labourers, and supporting groups (traders, basi-basi and people who provide food to the hired labourers in exchange for gold dust) in the Tarkwa Nsuaem Municipality. The study covered three periods before, during and after ban. The study concentrated on the concept of small-scale mining, concept of livelihood, and on sustainable livelihood framework. Though the problems and findings are from the small-scale miners in the Tarkwa Nsuaem Municipality, they may apply to other regions in Ghana and elsewhere with similar characteristics.

Limitations of the Study

This study, like any other research work, is not without limitations. The generalization of the result may be affected since the study was done in only five out of twenty-three communities in the municipality. The study probably would have been strengthened if the sample size was increased to include more stake holders.

Again, lack of co-operation from some of the respondents posed problems. Some respondents were reluctant to give information because of the sensitive nature of the SSM activities in the country. Because the SSM is practiced illegally, some of the respondents refused to answer the questions. Again, some of the SS miners were treated badly during the ban; most often, they (the miners) were harassed by the military. They thought the members of the survey team were spies and they even threaten to beat them up. After much persuasion, such respondents obliged, and provided the information the research team required.

Definitions of Terms

Small-Scale Mining: In this thesis the term small-scale mining refers to licensed or registered non-mechanized or semi-mechanized mining operation usually run by individuals or small by organized cooperatives.

Livelihoods: A livelihood comprises the capabilities, assets (including material and social resources) and activities required for a means of living (Chambers & Conway, 1991).

Implications*:* The implications of an operation are the results that are likely to happen in the course of time. Usually it is the effect that an action or decision will have on something else in the future.

Ban: Shut down, or an official order that prevents something from happening because of its damaging effects on the environment, or on people's health (Cambridge Advanced Learner's Dictionary (4th Ed.).

Site*:* A place where the SSM activities take place.

Galamsey mining*:* Mining which is carried out without government permits or license.

Galamsayers: Unregistered Small-Scale miners or those without permit who operate on lands given to them by chiefs and landowners.

Small-Scale miners*:* Those miners who work with permit and under environmental regulations.

Basi-basi: Helpers

LSM: Large-Scale Mining

FDG: Focus Group Discussion

IDI: In-depth-Interview

Organization of the Study

The study is divided into five (5) chapters. Chapter One presents the background information to the study, the statement of the problem, the objectives of the study, the research questions and the significance of the study. The Chapter also looks at the delimitations and limitations of the study, definitions of terms, and the organization of the chapters.

Chapter Two reviews related literature on the concept of small-scale mining, socio-economic implications of SSM, concept of livelihood, and sustainable livelihood framework.

Chapter Three describes the methodology employed in the study. It describes the study area, target population, sample size and sampling techniques, data sources and data descriptions, research instrument, analytical tools and analysis, and ethical considerations. Chapter Four presents the discussion on the results in relation to the reviewed literature. Chapter Five presents the summary, conclusions and the recommendations based on the findings of the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter presents a review of the literature relevant to the study. The review has been done according to the following headings:

Concept of small-scale mining

The challenges of Small-Scale Mining

Activities of SSM that bring about ban

Implications of ban on SS miners and on the environment.

Concept of livelihood

Theoretical Framework (Sustainable livelihood framework).

The above sub-titles served as the bases upon which the study was conducted. The selection of the topics depended on their appropriateness, ease of application, and their explanatory power of the phenomena under study. This approach, it was hoped, was going to give room for comparison between the findings that were to emerge from the present study, and those from other studies.

Concepts of Small-Scale Mining

The Organization for Economic Co-operation and Development (OECD, 2013), defines small-scale mining (SSM) as a formal or informal operation with predominantly simplified forms of exploration, extraction processes and transportation. The Mining Minerals and Sustainable Development (MMSD, 2002), has also defined the SSM as an operation that exploits marginal or small deposits, and lacks capital, but is labour intensive. The SSM is sometimes done with the use of simple equipment such as shovels, and occasionally with bulldozers and excavators to dig the ground to reach the mineral ore (Hinton,

2005). It has poor health and safety measures and has significant negative impacts on the environment. The SS miners may consist of men or women who work on individual basis, in family groups who are in partnership, or as members of cooperatives, or other types of legal associations and enterprises involving hundreds or thousands of miners (OECD, 2013).

The World Bank (2005), suggests that small-scale mining is an important sector that provides a source of livelihood to many people in rural areas; because barriers to entry are low, requires relatively small finance, education, and technological investment. Hilson and Ackah-Baidoo, (2010), say that SSM does not only attract the poor but it also attracts labourers, farmers, redundant public-sector employees, teachers, and other educators, and even students to work in order to earn money to cater for their bills.

People engage in the SSM operations because it is useful in basic skill training, and it contributes to the transformation of the unskilled into semi-skilled and skilled workers. But most of the time, the SSM is described as a "rush-type" activity, which is chaotic and entrepreneurially-driven. The motives of the miners who act as"fortune-seekers", are that, they are poor and ignorant youth, who want to 'get-rich-quick' (Hilson, 2009).

A number of the SS gold miners are poor migrants or seasonal workers who devote their time to mining and other economic endeavours (Phillips, Semboja & Shukla, 2001; World Health Organization, 2001). The activity is often seen as a "distress-push" type of occupation which miners engage in to alleviate their poverty and to complement income from other economic activities (Hilson, 2009).

According to the Communities and Small-Scale Mining (CASM, 2008), the SSM is labour-intensive; it employs semi-skilled or unskilled labour, and low levels of mechanization. The SSM is a production system that allows local people to earn cash. It provides an accessible livelihood for the poor and marginalized people, often complementing other livelihood activities such as agriculture, animal husbandry and hunting. Simply stated, it serves as a supportive operation in times of environmental or other economic stress (CASM, 2008).

In Africa and other developing countries, the SSM sector is gradually experiencing significant growth, particularly, in remote rural areas. This has occurred mainly in response to widespread unemployment especially in countries where this economic activity takes place (Hentsche, Hruschka, & Priester, 2003). Kitula (2006) states that small-scale mining activities have created market opportunities for local farmers and petty traders, and employment opportunities for others.

Siegel and Veiga (2009) have opined that the SSM is three to five times more lucrative a business than other small-scale activities and usually, it is a poverty-driven economic activity. Lole (2005) says that SSM provides many benefits to mining communities; it provides employment and cash for families, and hence alleviates poverty. It has impacted both household income, and contributions to local economies. The SS miners can be local people or migrants from within a country or from neighbouring countries. Some people engage in the SSM due to shocks such as loss of employment, conflicts, or natural disasters (Chilmaza & Rivas, 2009).

In Ghana, the Mineral and Mining Act of 2006 (Act 703), permits SS miners to mine in areas that do not exceed 25 acres of land for a period of three to four years (Hinde, 2010). The SSM Law, PNDC Law 218, was enacted to fully regularize the small-scale mining sector in the country (Hilson, 2001). Under this law, the SSM Project was responsible for the registration and supervision of all SS miners in the country.

Due to the presence of 'black-market', where the mineral resources were smuggled out of the country (Aryee, Ntibery, & Atorkui, 2003), the Diamond Marketing Corporation (GMC) also known as the Precious Mineral Marketing Company (PMMC), was established to market gold and diamond produced by the SSM sector in the country (Akabzaa & Darimani, 2001). This was done to stop the revenue that was being lost through the smuggling of mineral products to other countries. The various governments of Ghana have also established a number of institutions to regularize the SS operations in the country. Among the institutions are the Ministry of Mines and Energy, the Minerals Commission, the Geological Survey Department, the Chamber of Mines, the Environmental Protection Agency, Lands Commission, Land Valuation Board and the Forestry Commission. These organizations by law are required to provide support services to ensure optimal exploitation of the country's natural resources (Hentschel, Hruschka, & Priester, 2003).

The following policies have been outlined in relation to the regularisation, and environmental management in Ghana (Anon., 2006; Anon., 1994):

1. License for small scale mining (Act 703, Section 82(1)), "... a person shall not engage in or undertake a small-scale mining operation for a mineral unless there is … a license granted by the Minister of Mines".

2. Qualification of applicant for small scale mining license (Act 703, Section 83), "a license for SSM operation shall not be granted to a person unless that person is a citizen of Ghana and has attained the age of eighteen years".
3. Forestry and Environmental Protection (Act 703, Section 18), "... the holder of a mineral right shall obtain the necessary approvals and permits required from the Forestry Commission and the Environmental Protection Agency for protection of natural resources, public health and the environment".
4. Environmental Impact Assessment (Act 490, Section 12(1)), "the agency may ... require a person responsible for an undertaking … likely to have adverse effect on the environment to submit an environmental impact assessment".

Unfortunately, Chilmaza and Rivas (2009) say that most SS miners operate in the absence of an applicable or appropriate legal framework. Others however operate within legal framework and hold land titles and government permits. Such operators pay taxes and are subject to the local, social and environmental regulations. On the other hand, deviants called 'loti' in the mining areas in Ghana, do not hold permits. They go to the field in the night, and dig channels to collect the gold. It is mainly such people who die in collapsed pits. Others go to chiefs or landowners and pay fees to mine. The two categories do not pay any tax to the government.

The rapid growth in Ghana's small-scale gold mining sector has been attributed to lack of jobs and the associated national poverty situation (Hilson & Potter, 2005). Fortunately, SSM provides jobs and income for people and

support to their livelihoods (Amankwa & Anim-Sackey, 2003). The sector also serves as a source of raw materials for the local jewelry industries (Yakovleva, 2007). In Ghana, Hoedoafia, Cheabu and Korang (2014) investigated the impact of SSM on the living conditions of the people of the West Gonja District in the Northern Region of Ghana and concluded that the activities contribute positively to improving the lives of the people in the form of employment, revenue generation and meeting the health, educational, and the basic family needs. On the other hand, the activities are associated with negative social and environmental issues. The authors recommended that in the absence of a viable alternative source of livelihood, the West Gonja District Assembly should organize the SSM into groups, assist them to acquire equipment needed for their operations, and regularly monitor and control their activities.

Mwaipopo, Mutagwaba, Nyange and Eleanor (2004) have concluded that SSM communities fare better in terms of poverty alleviation than other communities, and that SSM has the potential to increase people's livelihood security through wealth creation, asset accumulation, and investment, and therefore contribute to reduction in vulnerability, even though it is associated with high levels of risk.

The relationship between the SSM and livelihood has been described more clearly by Amoako and Abew (2009) who reviewed the types of alternative livelihood programmes undertaken by some mining companies and their effectiveness in the Wassa West and Upper Denkyira Districts in Ghana before, during, and after mining operations, and proposed a framework for sustainable alternative livelihood for the mining communities. The alternative livelihood programmes recommended and implemented by the mining

operators ranged from small businesses to agro-based activities. The major livelihood activities for the men and women before the commencement of mining activities were small-scale mining, trading and farming. When the mining activities were going on, majority of the men either got employed by mining companies or engaged in the SSM while the women continued trading and farming. Unfortunately, after the ban, most of the people in the communities became idle (Amoako and Abew, 2009). This conclusion is supported by the findings of Awumbila and Tsikata (2004) that livelihoods in the northeastern part of Ghana were structured around farming and fuel wood gathering before the influx of mining activities in the area.

Owusu and Dwomoh (2012) examined the impact of illegal mining on the Ghanaian youth in the Kwaebibirem District in Ghana, and found that poverty, ignorance, and the'get-rich-quick' attitude of the youth were the main motivational factors for illegal mining activities in the district. The study also found that illegal mining activities have negative impact on the youth in terms of high dropout rates from schools, increase in teenage pregnancy, disrespect towards the elderly and engaging in undesirable behaviours such as smoking of hard herbs. The authors recommended that government should institute measures to discourage the youth from illegal mining activities if the country was to reap their full potential in the future. The findings were similar to those of Osei-Adu, Osei and Amponsah (2016) who examined the factors influencing participation in illegal mining, and who found that household size, age, sex, educational attainment, perceived risk and peer influence were key predictors of one's decision to participate in illegal mining in the Denkyira corridor. On those basis, they recommended that there should be mass education on the

negative effects of illegal mining, and that education should focus on males, household heads and the youth.

The challenges of Small-Scale Mining

The SSM is criticized because of the criminal activities of the miners and the damage they do to the environment (OECD, 2017). For example, in June 2002 the Peruvian community of Tambogrande voted to reject SSM in their community due to the concerns regarding the projected displacement of half of its residents and to the fears regarding the potential influence of miners on the community's traditional values (Oxfam, 2002). In Peru, Bebbington, Bury, Mu˜noz and Scurrah (2008a) have acknowledged that though SSM enhances standard of living, it creates immense challenges for livelihood stability and environmental sustainability. Priyanath, (1999) has observed that generally, there is a decline in agriculture, but increase in seasonal unemployment, inequality in income, and lowering of standard of living in the mining areas whenever mining activities collapse.

In Venezuela and Colombia, mercury used in gold extraction has affected the health of the indigenous people who live or work near mining sites (Oxfam, 2002). The mining areas have also become areas where armed-robbery groups operate (Oxfam, 2002). Another observation was made by Akabzaa and Darimani (2001), who found that, dust particles of less than ten (10) microns pose health threats to the people of mining areas in the Tarkwa area of Ghana. All fine dusts at high levels of exposure have the potential of causing respiratory diseases. Dust from gold mining operations has high silica content, which has been responsible for the incidence of silicon-tuberculosis in mining areas. Stephens and Ahern (2001) have examined the impact of mining on the health

of both mine workers and the people living in the surrounding communities. The authors concluded that, mining remains one of the most hazardous occupations in the world, not only in terms of short-term injuries and fatalities, but also due to long term impacts such as cancers and respiratory conditions.

Researchers such as Mu˜noz and Scurrah (2008a) have described SSM as one of the necessary evils of the modern world, despite the fact that it provides materials required to sustain quality of life. The authors are of the view that, while improving the quality of life and giving impetus to economic development, it has also brought in its wake, a notable negative impact on the environment as well as on the socio-economic conditions of local people. For example, the destruction of the Amazon rainforest is due to the epidemic of illegal mining that has disrupted the living conditions of the natives (Vagholikar & Moghe, 2003). McMahon and Remy (2001), have made similar negative environmental observations in Latin America. Hentschel, Hruschka, and Priester (2003) have found that, SSM harms physical and social environments and that the most important environmental problems are mercury and cyanide pollution.

Most of the SSM operations increase sedimentation in rivers through the use of hydraulic pumps and suction dredges which in addition leave scars on the landscape. Some operators discharge poisonous chemicals into rivers, making them unsafe for human use (Akabzaa, 2000; cited in; Ofei-Aboagye, Moi, Al-Hassan, Akabzaa, & Ayamdoo, 2004). Experience from Ghana shows that, several water sources in the mining areas have been polluted by the SSM operations. Harmful chemicals have contaminated nearby water bodies resulting in skin rashes (Jones, 2001; Fisher, 2006; Dansereau, 2007)

In spite of the financial help, a study by Nsohbono (2013) on the impact of SSM on the education of children in Ghana has indicated that child labour in the SSM areas have significantly and negatively impacted on the total development of children, especially, through the reduction in school attendance which often leads to loss of interest in education by children. This finding supports the work of Mireku-Gyimah (2011) who opined that child labour in the mining areas has increased with more than 2,000 children of school-going age actively engaged in the SSM activities.

The root causes of child-labour in the SSM areas in Ghana have been identified as poverty, inadequate educational and recreational facilities, broken homes and pressure from parents for children to work. Recommendations that have been made to improve the situation included the need to change the perception about child labour in the SSM communities, channeling more efforts towards tackling child labour in the SSM areas by strengthening the laws against child labour, the provision of adequate school infrastructure, and subsidies to mining communities to improve communities' livelihoods (Nsohbono, 2013).

Activities of SSM that bring about ban

The environment, its natural resources and development capacity remain contentious elements in the development process of human society (Opoku & Asare, 2014). The dominant theme of environmental protection is the achievement of sustainable development (Pallangyo, 2007). Due to the degradation of the environment and other challenges associated with entities such as the SSM, environmental protection agencies have emerged from a point of insignificance to major institutions in recent years. Thus, many countries in

the world are trying to adopt strategies that help to protect their environment (Pallangyo, 2007).

El Salvador became the first country in the world to ban all metal mining, and to price water over gold (Lopez, 2017). It took a cue from the Philippines and Guatemala where metal mining polluted water ways and water for domestic purposes and hence, that activity was banned. The Ore Asia Mining and Development Cooperation of the Department of Environment and Natural Resources in the Philippines suspended or banned 23 mining companies that operated in functional watersheds. The ban was lifted only when the companies provided good environmental assessment reports that did not show any pollution of the environment (Lopez, 2017).

A 2017 report from the United States Geological Survey says that, Russia, Brazil and China, that were engaged in asbestos mine production in 2015 and 2016, banned the use of asbestos due to the increase in environmental pollution and to the outbreak of asbestos-related diseases such as cancer, mesothelioma, and causative agent like carcinogen, Brazil has since placed a ban on the production, distribution and the use of asbestos (Holden, 2007).

Experiences from Canada show that there have been strong trends towards stricter environmental regulations and better performance. In certain cases, due emphases have been placed on mine closure and rehabilitation (Holden, 2007). The Holden (2007) has observed that there have been keen interests on cooperative monitoring of environmental management programmes especially in indigenous areas where the SSM is done.

Implications of a ban on SS miners and the environment

The Supreme Court of India in September 2003 put a ban on ore mining in Goa. Nine (9) years later, it was found that the ban had brought positive impacts on the socio-economic activities of the surrounding communities (Pushp & Jain, 2013). Residents of the villages around Netravali, Sanguem, and Goa reported that, the ban had brought improvement in the quality of their stream-waters. According to the residents, there were significant improvements in the quality of air, and fresh water bodies, noise-free environments, and the appearance of springs that were earlier on dry (Priyanath, 1999). After the ban on mining, the 'dead' rivers began to flow and wetlands reappeared; there was also an increase in fish catch in the major rivers of Mandovi and Zuari (Pushp & Jain, 2013). Fishermen in Chicalim area (downstream of Zuari River) reported that they had started extracting 'mendios' (window pane oysters) which were hard to find earlier on. In spite of the gains, the ban caused a negative change in their occupation structure. It blocked their source of income (Priyanath, 1999).

Mengwe, (2010) has observed that, migrants who flock into mining areas in search of jobs move back to their various places of origin, or search for different jobs whenever mining activities are shut down.

Bans bring in much negative impacts on the businesses which people depended. Simply stated, it creates unemployment. Some authors like Priyanath (1999), are of the view that when a ban is imposed on economic activities, there are shocks. Some miners look around or migrate to other places to look for alternative jobs (Williams, 1976). As such, Brimley and Garfield (2002) have suggested that it is important to make investment in education because

education or training institutions create platforms for acquiring skills necessary for securing and sustaining decent employment. According to Sernau (2009), investment in knowledge (education) makes workers more productive. Some authors such as Donkor (2014), suggest that by upgrading and admitting the youth into vocational and technical institutions, some people can create job opportunities for themselves instead of depending on the government for jobs.

The banning of certain economic activities leads to unemployment, which has posed several socio-economic barriers that impede economic developments of many areas (Frempong, 2012). For example, it leads to the loss of human resources, to poverty and the breeding of social ills that cause political instability, and exploitation of labour in some African countries (Frempong 2012). Unemployment leads to negative ill-health, and indebtedness which leads to loss of assets and impoverishment that have devastating impacts on households (Barret and Beardmor, 2000). Some of those who are unemployed engage in illegal activities because they do not have the adequate education or skills needed for other jobs (Mukhovha, 2008).

The ban on SSM affects the livelihoods of many people because it brings hardships and poverty to mining communities. For example, Chandrashekar (2018), posits that over three million (3M) Ghanaians livelihoods were affected between 2017 - 2018 mainly because of the ban on the mining industry, banking, and the collapse of other industrial sectors in the country. According to Amoako and Abew (2009), many people began to live in poverty after the SSM was shut-down or collapsed because they depended solely on that job (the SSM).

Gallie, Gershuny and Vogler (1994), have found that people who are unemployed are prone to greater vulnerability problems and are exposed to

psychological and financial difficulties which, in turn, make it more difficult for them to escape poverty. Cullen (1999) and Warr (1997) say that individuals who lose their livelihoods (jobs) are prone to the spectrum of emotions, such as anger, sadness, confusion, stress, and depression, and this becomes serious in the cases where finding jobs take longer than originally expected, especially when the individuals do not have enough money to meet some basic needs such as food and shelter.

Similar to the above, Sen (1997) states that, banning any socio-economic activities lead to psychological harm, health problems, loss of motivation for future work and loss of relationships and family life (all due to unemployment and poverty). The above, according to Sen (1997), have in detrimental or damaging effects on social relations, because they impair the harmony and unity of families, and jeopardize the relations with friends and relatives.

Davis and Wachter (2011) have found that men who lose their jobs, or are laid-off, become hopeless. The authors say that being out of work affects many families and communities. The individuals tend to be in poor health, and their children's education becomes jeopardized. The authors further have observed that communities with a higher share of long-term unemployed workers are likely to have higher rates of crime and violence. Mikesell, Lusterman and McDaniel (1995) says that when people such as miners become unemployed due to a ban on their livelihood, they are either tempted to go back to illegal or criminal activities. Such people become involved in criminal activities, because they spend much of their time idling, under financial pressure and are frustrated. Indeed, the poor are frequently led to crime, because of their relative deprivation and acute sense of want (Bangane, 1999). ILO (2005),

concluded that unemployment drives many young women into sex-work. The United Nation Report of 2003 says that when parents are unable to cater for their wards' education, their children stop attending school, and end up living on the streets. Such youth end up abusing illegal substances, and engaging in violence and civil conflict (Knowles & Behrman 2003).

Suggested Recommendations

According to Hopic (2009), unemployment in SSM communities tend to be high when there are shocks (banning). The author therefore has suggested that in the absence of SSM activities, people should engage in new jobs such as agricultural activities that serve as coping strategies (Matković, Mijatović, & Petrović, 2010: Acheampong, 2019). According to the authors, agriculture (cash crop farming and animal rearing for export) serves as a safety net when people become laid-off, they therefore recommend that people should resort to agriculture as an alternative source of income or livelihood when they are out of work.

Matković, Mijatović, and Petrović, (2010) have further suggested that agriculture in rural communities should be carefully studied so that government could design adequate policies, strategies or measures to mitigate unemployment. As such Baah-Boateng and Turkson (2013) have suggested that government should put in place policies to create unemployment intervention, whenever a ban is imposed on illegal economic activities.

The African Economic Outlook (2012), has suggested that governments can develop macroeconomic policies that promote job creation and broaden financing regulations as a form of support so that small companies can get loans or credit to grow their business and hence, employ more people. The Economic

Outlook (2012), opines that developing national action plans that target youth employment and assigning resources, provide incentives for employers to hire first-time job seekers to train and increase retention. It further requests government to support public partnerships that are designed to employ people by creating infrastructural projects that hire and train people in certain skills. The African Economic Outlook (2012), opines that such a move has additional benefits that foster the growth of businesses that offer more jobs to laid-off workers.

Priyanath (1999), has suggested that, there is the need to educate people about SSM, and to stress the importance of investing in alternate businesses or avenues that can equally support livelihoods when mining collapses. According to Schmid, Speckesser and Hilbert (2001), there is the need to train the unemployed so that they could acquire the basic skills to work with whenever there are changes in their economic activities.

Chandrashekar (2018) has fortunately made recommendation to the government of Ghana to put social protection programmes in place to alleviate the suffering of displaced miners. According to the Asian Development Bank (2012), it is governments that control policies and resources that determine people's prospects for economic success hence employers (whether in the public or private sector), should provide in-service training or incentives that can help young people such as the SS miners work on their own when they become unemployed.

From the above, it is clear that a ban on the SSM has positive and negative socio-economic implication. In times of closure the SS miners are badly affected because they depend on that job for their livelihood. As such,

measures should be put in place to sustain the positive impacts, and to eliminate the social ills.

Concept of Livelihood

According to Chambers and Conway (1991), livelihood comprises the capabilities, assets (both social and material resources) and activities required for living. Ellis (2000), says that livelihood comprises the assets (natural or physical, and human or social capital), activities, and access that together, determine the living condition of the individual or households. A livelihood according to Ellis and Freeman (2004), comprises the occupation that helps people to earn a living, or an institution that assists people to pursue a given livelihood activity.

From the above, it could be said that livelihood is all about individuals, households or groups making a living, and attempting to meet their various consumption and economic necessities, while coping with uncertainties and responding to new opportunities (Haan & Zoomers, 2003).

In Africa, 70 % of household income is from farming activities. In Asia and Latin America, it is 50 % (Davis, Wilson, Brock-Marti, Glover, & Svendsen, 2010b). Some people engage in certain informal sector activities that provide them with cash incomes during insecure conditions. But those in the informal employment tend to lack security. They are therefore those who are susceptible to sudden unemployment events and to the risks resulting from unprotected working conditions (Potter & Lloyd-Evans, 1998).

Livelihoods, according to Ellis (2000); Fabusoro, Omotayo, Apantaku, and Okuneye, (2010); and Khatun and Roy (2012) are governed by several factors that include:

1. Inheritance: the process where an individual takes up unsustainable livelihoods for example cultivation, pastoral, fishing, shop keeping, and artisanal work that have been passed on to him or her in the family.
2. A spontaneous livelihood**:** a job taken up due to desperate situations in which what an individual does, is in principle determined by social, economic and ecological situations.
3. Gender: where a livelihood is determined by the gender of an individual for employment. The weak and the disabled are usually not considered even though they have the highest qualification. Gender does not necessary refers to a man or woman, but to what society thinks of an individual (either the person is bold or weak or strong, etc.)
4. Education and migration: where qualifications determine which field of work an individual can engage in. People often move to new areas in search for work and better life, if they possess the necessary skills even though, experience counts a lot.

In the pursuit of livelihoods, communities may earn their livelihood by widening their income sources; that is, by engaging in activities that can sustain them adequately when the main occupation collapses (Ellis, 2000).

Chambers and Conway (1991), say that a livelihood is sustainable when it allows people to cope with, and recover from setbacks and stress (such as natural disasters, and economic or social upheavals), and improve their welfare and those of the future generations without degrading the environment or the natural resource base.

Migration for example is a common livelihood strategy. Sobang (2014) says that people migrate to other places as a livelihood or a coping strategy

when they lose what they have. Lack of natural resources, military conflicts, and changes in institutions, laws and policies, are some reasons for people to migrate (Lee & Neves, 2010). Bairwa, Lakra, Kumar and Kushwaha, (2014) have concluded that the main livelihood strategies of rural households are agriculture, self-employment in non-farm activities such as weaving and carving, wage labour, trading and hawking, provision of services in transport, and other available services, and finally migrating to towns and other countries.

Theoretical Framework

There were some frameworks such as Sustainable Rural Livelihoods framework by the Institute for Development Studies (University of Sussex), CARE's Household Livelihood Security Model, Oxfam's Food Security Assessment Model, Ellis Livelihood Framework for micro-policy analysis or Rural Livelihoods, and Sustainable Livelihood framework for the Pacific Islands (Carney, 1998; Drinkwater & Rusinow, 1999; Cahn, 2006) but the Department for International Development's (DFID,1999) Sustainable Livelihood (SL) framework (Fig.1) was the most relevant to the present study and it was therefore considered. The model captures variables such as livelihood assets, livelihood strategies and outcomes.

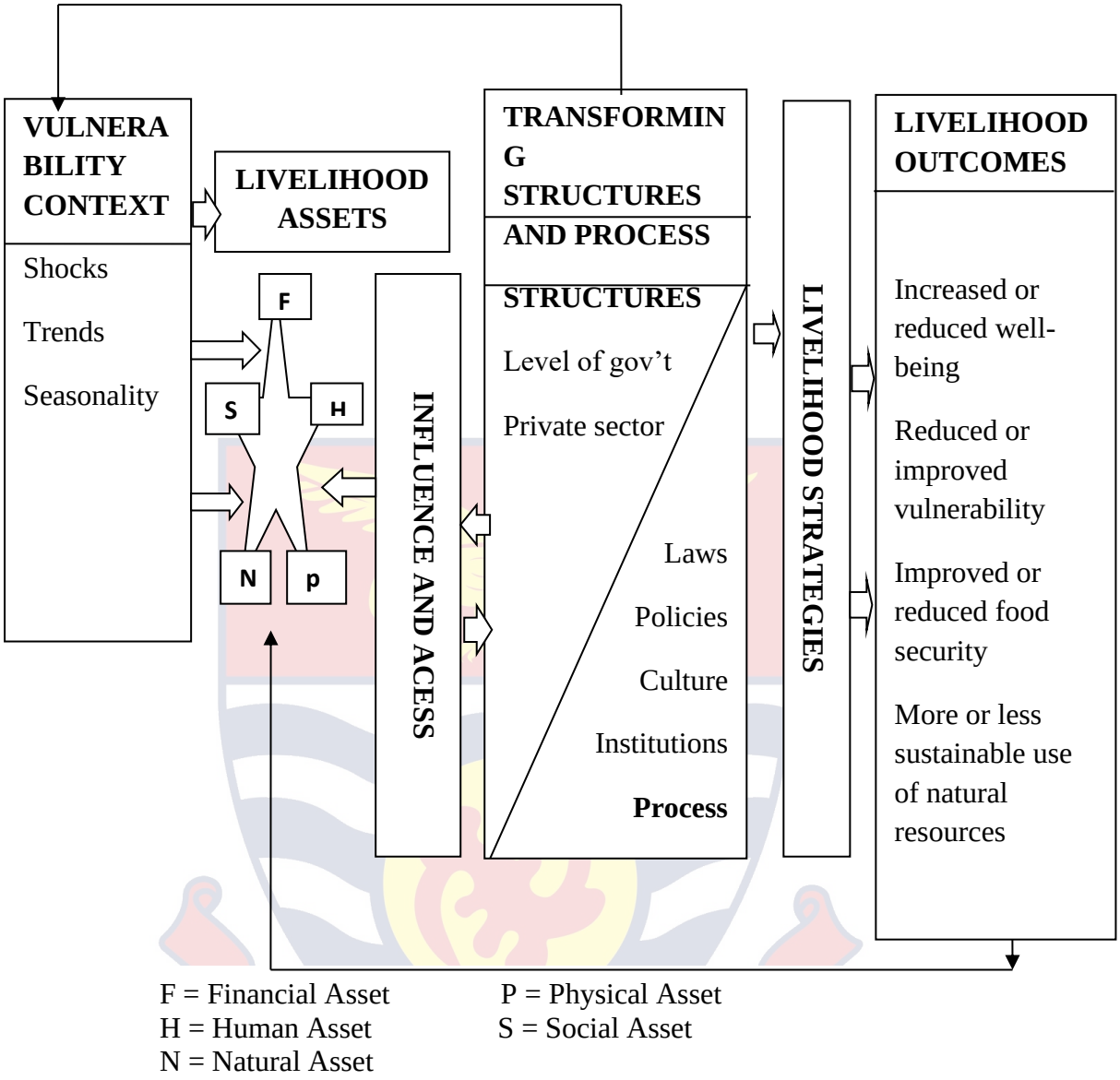


Figure 1: Sustainable Livelihood Framework

Source: Department for International Development (DFID, 1999)

All humans are vulnerable to changes in their livelihoods as a result of sudden events (natural or cultural). The framework states that workers become vulnerable when they are suddenly stopped from working due to an environmental change, a shut-down by the government or by cultural norms because their activities destroy the quality of the environment. The ban or shut-downs, comes to the workers through the laws, policies or decisions by the government, institutions or the community. During such bans or shut-

downs the laid-off workers fall on the acquired assets that may be financial, human, and natural (Ellis & Freeman, 2004).

During the time workers are laid down or lose their jobs, they develop certain livelihood strategies that could be adaptive or mitigative, to cope with the adverse effects on their livelihoods. These strategies may lead to livelihood outcomes such as increased or decreased well-being, reduced or increased vulnerability, improved or reduced food security, and increased or reduced sustainable use of natural resources. Eventually, the outcomes may reduce or add to the already acquired livelihood assets (Lee & Neves, 2010).

In the sustainable livelihood framework diagram, vulnerability context refers to the external environment in which people live. It includes trends (such as national or international economic trends, changes in the available technology, and political systems), shocks (such as illness or death, conflict, and weather), and seasonality of prices, production cycles, and so on (Ellis, 2000).

The vulnerability context is important because the three factors have direct impact on the possibilities that poor people may have to earn a living now, and in the future (Haan & Zoomers, 2003). Wider economic conditions can create more or fewer opportunities; an illness in the family can deprive it (the family) of important sources of income, and also can force members to sell important assets that they have built up. According to Ashly and Carney (1999), seasonal shifts in prices, production and employment opportunities, are some of the sources of hardship poor people all over the world encounter. These affect the various livelihood assets that an individual possesses', that is, they can cause the assets to diminish or expand depending on the context.

The sustainable livelihood framework contains five different types of assets upon which individuals draw or build their livelihoods. These assets that are central to sustainable livelihoods are natural asset, social asset, human asset, physical asset and financial assets (Carney 1998, Ashly & Carney 1999, Bebbington, 1999). Below are the details of the various assets.

Human assets are skills, knowledge, the ability to work and good health. Good health is not simply a means to earning a livelihood, it is an end in itself.

Social assets are the social resources such as the relationships with either more powerful people (vertical connections), or with others like themselves (horizontal connections), or membership of groups or organizations upon which people rely on to make a living. Generally, their assets are the relationships of trust, reciprocity and exchanges that the poor can draw on in times of need. Like human capital, social capital has an intrinsic value; good social relationships are not simply a means, they are ends in themselves.

Natural assets are the stocks that people can draw on for their livelihoods; they include land, forests, water, and air.

Physical assets are the basic infrastructure, tool or equipment that people may need to make a living, and which they use. It includes transport and communication systems, shelter, water and sanitation systems, and energy.

Financial assets comprises savings (in whichever form), access to financial services, and regular inflows of money.

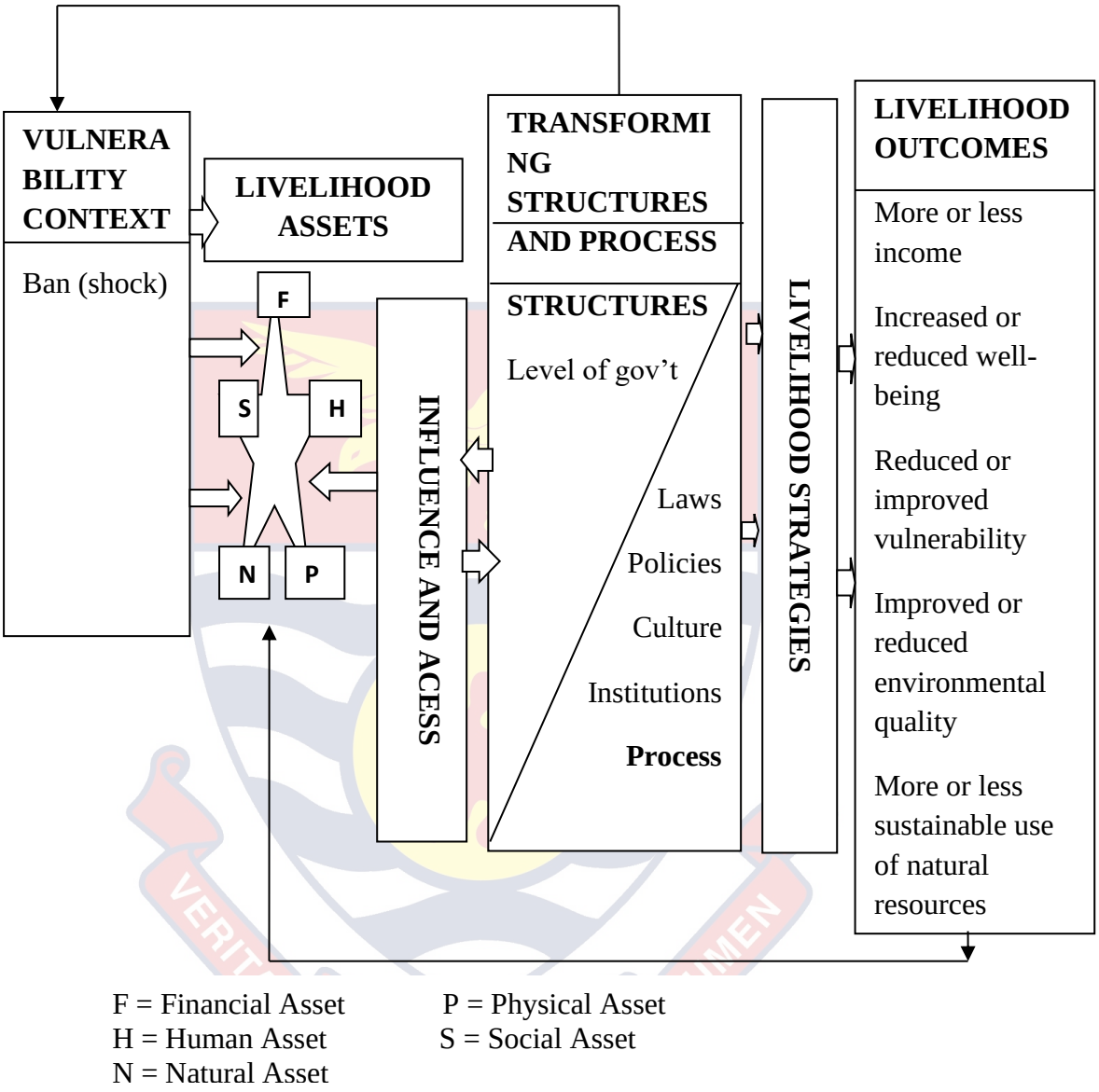
Transforming structures and processes refer to institutions and policies that affect poor peoples' (from public and private entities to national policies and local cultures) lives. All these can change both vulnerability context and assets (the five different types of assets) to which people have access to (FAO,

2012). Laws, cultures, policies, and institutions (LCPIs) determine the access to the various types of outcome which grant or deny people access to the assets, help to cushion impacts of external shocks, and provide social safety nets to reduce vulnerability. Apart from policies, laws, and cultures, and institutions can restrict people's livelihood choices and impact directly on their livelihood outcomes (FAO, 2012).

People undertake a range of livelihood strategies, activities and choices that ultimately determine their livelihood outcomes. The new livelihood either make them well-off, or deteriorate their condition (Ellis & Freeman, 2004). It can replenish the assets they have acquired or reduced them. According to Kalinda and Langyintuo (2014), a successful livelihood outcome helps to strengthen endowments, while failure leads to depletion or loss of endowments. The outcomes that they may achieve, include 'more or less income,' increased or reduced well-being, reduced or improved vulnerability and greater or lesser food security.

The concept of sustainable livelihood Framework (Fig.1) was adopted because it provides a way of deeply exploring the role of environmental resources in the livelihoods of the poor. It helps to look at the complexity of peoples' livelihoods, especially the livelihoods of the poor, whether they are rural or urban. It also helps to understand the various dimensions of a persons' livelihood the strategies and the objectives pursued, and associated opportunities and constraints.

Figure 2 is the adapted framework that shows the implications of shut-downs or bans on economic activities such as small-scale mining.



F = Financial Asset P = Physical Asset
H = Human Asset S = Social Asset
N = Natural Asset

Figure 2: Sustainable Livelihood Framework

Source: Adopted from Department for International Development (DFID, 1999)

The SL framework (Fig.2) was adapted to show the extent to which the 2016 ban impacted the livelihoods of the SS miners in the Tarkwa Nsuaem Municipality (TNM). In Figure 2, shocks, trends and seasonality have been replaced by ban. Ban here implies one basic thing that is, laws, institutions,

policies and culture which are all commands. The ban does not depend on trends or seasonality. Before the ban was placed on the activities of the SSM, the people of the Tarkwa Nsuaem Municipality depended on the land and other livelihood assets (financial, social, human, natural, and basic) to earn their living. Before the ban, the SSM depended on the available human assets. People from the mining communities were employed to perform certain duties at each stage of the mineral production. But the methods used in the SSM activities from the production stage, to the last stage (outcome stage), pose potential threat to the health of the SS miner (human asset) and to the environment (land or natural asset); these therefore necessitated a ban.

The influence and access to the structures (various laws, cultures policies, and institutions) and the transforming structures help SS miners to overcome the shocks resulting from any shut-down order. For instance, human assets enable people to pursue different livelihood strategies when the need comes (DFID, 2000). Social assets play important role in helping SS miners to overcome shocks resulting from bans because social assets emphasize the importance of social interactions and structures between individuals and communities.

Similarly, regulations and community-based rules (cultural norms) influence access to any available resources (Allison & Ellis, 2001). Concerning the ban on the SSM in the Tarkwa Nsuaem Municipality, the roles played by key stakeholders such as the central government, may significantly increase people's sense of well-being, or make them vulnerable (Addo, 2008).

Social assets may serve as security network for the SS miners during a ban. Quite often access to and the amount of social assets are determined by age and gender, and may even differ within communities (Allison & Ellis, 2001).

The ban on SSM activities in the sustainable livelihood framework may result in out-migration. These can either strengthen or destroy existing social networks.

CHAPTER THREE

RESEARCH METHODS

Introduction

Stenbacka (2001) has observed that methodology connects researchers to specific sites, persons, groups, institutions, and bodies of relevant interpretive materials including documents and archives. It also seeks to address the general planning of research process, strategies and data collection techniques. This chapter describes the study area, the study design, the target population, the sample size and sampling techniques, data and sources, the research instruments, analytical tools, ethical consideration, and challenges from the field.

Study Area

Figure 3 shows the Tarkwa Nsuaem Municipality. The study area has a total land surface of 978.26 sq. km. Established by Legislative Instrument (L.I. 1886, 2008), the Municipality is located between latitude 4°5' and longitude 5°5'. It shares boundaries with the Prestea Huni-Valley District to the north, the Nzema East Municipality to the west, the Ahanta West District to the south, and the Mpohor District Assembly to the east (Ghana Statistical Service, 2010).

According to the Ghana Statistical Service 2010 Population and Housing Census, the area has a population of 106,731, comprising 49% female and 51% male. About 32% of the entire active population is engaged in primary production (agricultural production and mining) while the remaining 68% are in the areas of commerce, private informal sector and the hospitality industry (GSS, 2010). The number of people employed in the public sector (government workers) is 1,396, while the private sector which is now emerging has attracted the rest in recent times. Thirty-two (32) and one hundred and thirty-three (133)

are in the semi-public, and non-governmental organizations (NGOs) respectively.

The study area has about 440.15 km^2 of forest reserves comprising the Bonsa Forest Reserve (209.79km^2), the Ekumfi Forest Reserve (72.52km^2) the Neung Forest Reserve (157.84Km^2) and other smaller ones. The forests help the people in the area through the benefits of tourism when they pay visit to those reserves. Some also rely on the land for farming activities. The relief of the area forms part of the forest disserted plateaus of Ghana. The Pre-Cambrian rocks of the Birimian and Tarkwaian formations underlie the forest-dissected plateau. Gold deposit is found in the Tarkwaian formation.

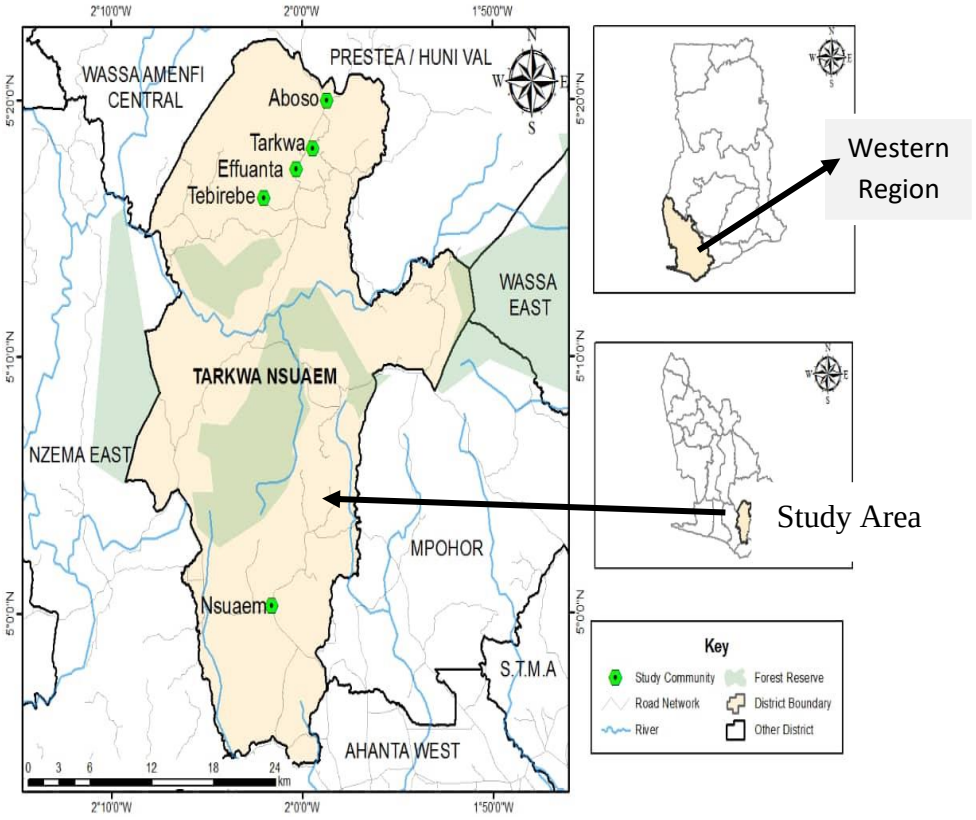


Figure 3: Map of the study Area

Source: Cartography Unit of the Department of Geography and Regional Planning (UCC), (2019).

The Tarkwa Nsuaem Municipality was chosen for the study because the area is familiar to the present researcher, and it was easy to get to the respondents. According to Chandrashekar (2018), Tarkwa people were the main SSM communities that complained bitterly against the adverse effects of the 2016 Government of Ghana SSM ban. Furthermore, criminal cases were most rampant in the areas.

Research Design

According to Creswell (2009), research designs are plans and procedures that span from broad assumptions to detailed methods of data collection and analysis. This study employed the mixed-method research design. The mixed-method integrates both qualitative and quantitative data within a study (Creswell & Plano, 2011). With this method, elements that are interlinked to produce full account of the research problems (Glogowska, 2011; Zhang & Creswell, 2013). It allows two or more data collection instruments to be used (Andrew & Halcomb, 2009).

Other advantages include the following; it provides the strength that offsets the weaknesses of both quantitative and qualitative research methods, it provides complete and comprehensive understanding of research problems than using either the quantitative or qualitative approaches alone, while the results from the quantitative and qualitative approaches complement each other.

Its weakness is that, it is expensive and time consuming to use. In this study, for quantitative methods, questionnaires were administered, while for the qualitative, recording in the field during focus group and in-depth discussions were done, and later transcribed.

Population of the Study

The population for the study consisted of the registered concessioners, their hired labourers (those with ticket from the registered concessioners), and their roaming labourers. It also included non-licensed concessioners, their hired labourers (those under the non-license concessioners and do not have ticket), their roaming labourers, and supporting groups (traders, 'basi-basi' and people who provide food to the hired labourers in exchange for gold-dust) in selected SSM sites in the Tarkwa Nsuaem Municipality. These were the people directly involved in the SSM activity, and who were in good position to provide relevant information. They were also the people who had suffered directly from the 2016 ban on the SSM. These groups of people were selected from five settlements that are Aboso, Effuanta, Tarkwa, Nsuaem, and Tebirebe (Fig.3). The settlements were conveniently selected because they agreed to participate, and were willing to provide answers to questions that were asked. This explains the skewedness of the locations to the north. Also, it was impossible to conduct field work in all the settlements where SSM operations are undertaken in the municipality. The population included male and female miners who worked in the SSM before and after the ban was lifted, and who were or had been affected by the ban.

Sample and Sampling Technique

According to Rice, Clifford, French and Valentine (2010), sampling entails gathering information from a relatively small part of a larger group or population in order to make inferential generalization about the larger group. Diaw, Blay and Adu-Aning (2002), have suggested that, taking a sample size from a population reduces the cost of research, and helps the researcher to draw

important conclusions. In all, there were twenty-three (23) settlements and fifteen (15) registered small-scale mining concessions. Both probability and non-probability sampling methods were used to select the respondents; the techniques were the simple random, the purposive and the convenience sampling methods.

The convenience and simple random sampling techniques were used to select the five registered small-scale mining concessions (Mohammed Brothers Small-scale mining, Aboso Small-scale mining, Prestigious Small-scale mining, Agyei-Ben Small-scale mining, and SteJoan Mining Group) out of fifteen (15). These registered concessions were selected from the five towns (Aboso, Effuanta, Tarkwa, Nsuaem, and Tebirebe) out of twenty-three (23). These selected registered concessions came from the stated communities. This was due to the fact that, among the communities in the municipality, they availed themselves to participate, and willingly provided all the information needed to carry this research. Again, it was not possible for the researcher to visit all the small-scale mining communities because of time constraint. Besides, the respondents from the five selected towns and concessions were engaged in the same mining activities and they gave similar responses to how the ban affected the miners. The method later, legitimized the researcher to make comparison and generalization.

An in-depth interview guide was held for the five registered concessionaires. The researcher had the list of the registered concessionaire. The researcher went to each of them and interacted with them by explaining to them the aim of the study and how the information provided would be used and also to allow the researcher to interact with their labourers. After interacting

with the concessionaires and based on their responses given, the information was recorded and later transcribed. This also gave an opportunity to compare and confirm from the answers provided on the questionnaires by their labourers. They were purposively chosen due to their in-depth knowledge on SSM and they provided the researcher with information on the implication of the 2017 ban.

Yamane (1967) formula was used to calculate the sample size for the study which is given as:

$$n = \frac{N}{1+N((e)2} \quad \text{where}$$

n = sample size, N = Total population, e = level of precision at confidence level of 95%.

Using the formula, a total number of three-hundred and seventy-eight (378) respondents were calculated out of a population of 6980 who were all involved SSM activity from the registered concessionaires. Each respondent was chosen based on his or her in-depth knowledge about the implication of the 2017 ban.

Table 1 shows the number of towns, concessionaires, target and sample population. From Tebirebe, the target population was 1800 and 98 were sampled. At Aboso 92 respondents were sampled from a population of 1700. From a population of 1500 at Nsuaem, 81 respondents were selected. At Effuanta, 42 respondents were sampled from the population of 1200. In all, 378 respondents were sampled from the total population of 6980.

Table 1: Towns, Concessionaires, Population and Sample Size selected

Towns	Concessionaires	Population	Sample size selected
Tebirebe	Mohammed Brothers Small-Scale mining	1800	98
Aboso	Aboso Small-Scale Mining	1700	92
Nsuaem	Prestigious Small-Scale Mining	1500	81
Effuanta	Agyei- Ben Small-Scale Mining	780	42
Tarkwa	SteJoan Mining Group	1200	65
	Total	6980	378

Source: Field Data, 2019

Focus-group discussions were held for the non-license concessionaires, their hired labourers (those under the non-license concessioners), and their roaming labourers, and the supporting groups (traders, basi-basi and people who provide food to the hired labourers in exchange for dust). With these groups, their total population were unknown therefore the researcher only selected those who were readily and willing to participate. There were eight (8) different groups and each of these groups were made-up of five (5) participants. The aim of the study was explained to them and those who understood it willing participated and provided the necessary information needed with the help from the moderator using the discussion guide. In all forty (40) people were involved. That is, for each group it was made up of twenty (20) non- license concessionaires with their hired labourers and for the supporting groups it was also made up of twenty (20). Their views were recorded and later transcribed. These did not form part of the 378-sample population.

Data Collection Instrument

Questionnaires guide, in-depth interview guide, and focus group discussions guide were the data collection instruments employed. The items on the questionnaires consisted of a list of questions or statements relating to the aims of the study, which were to be verified by the concessionaires ad their hired laboures and to which the answers were required to be written. The questionnaires were divided into six sections: A B C D E and F **(**see Appendix A). Open-ended and close ended questions were asked. Section A dealt with the socio-demographic characteristics of the respondents. Section B sought for the factors that attracted people to engage in the SSM. Section C was on the assets or livelihood of the SS miners before engaging in the SSM activity. Section D concerned the opportunities derived from the assets acquired while the miners were engaged in the SSM. Section E dealt with the effects of the ban on the livelihood of the SS miners, and Section F concerned itself with livelihood strategies adopted after the ban.

The in-depth interview guide was used to collect data from the concessionaires **(**see Appendix B). The use of the in-depth interview helped the researcher to probe more into the objective of the study. The use of the focus-group discussion was suitable when the information was sought from the respondents with homogenous characteristics (Sarantakos, 2005).

The strengths of these instruments were that, they were cost-effective way of quickly collecting data; with massive amount of information from a large number of people can be gathered in a relatively short period of time. The instruments were practical; that is, they offered a way to gather vast amounts of data on any subject. The researcher could interact with the participant, pose a

follow-up question or ask questions that probed more deeply. Further, the results of the questionnaires could manually or through the use of a software package be analysed. Some of the weaknesses of these method were that, there was no way to check the reliability of the answers given, and the group-discussions were sometimes difficult to control when everybody wanted to be heard.

Data Collection Procedure

In the process of collecting information from the respondents, it was important to follow the ethics of research (Economic and Social Research Council, 2002). In other to obtain permission from the target groups, letters of introduction from the University of Cape Coast Institutional Review Board (UCC-IRB) and from the Department of Geography and Regional Planning of the University of Cape Coast were collected and shown to the respondents. The field-work was done between 2nd February and 28th March 2019. The questionnaires were distributed to respondents at their various SSM sites. The focus-group discussion was conducted with people connected with the SSM. The researcher initially introduced herself to, and sought the consent from the concessionaires and other respondents; she then explained the purpose of the study to all the respondents. The researcher assured the respondents their confidentiality and anonymity, and how the information was going to be used. The researcher gave the questionnaire to the respondents for them to answer. Where a respondent could not read and write, he or she was assisted.

The retrieval of the questionnaires was done on several days. Some were collected on the same day they were distributed, while others took about three days or a week for the collection. The retrieval rate was 100%. All the 378 questionnaires were retrieved.

Data Processing and Analysis

Since the design was a mixed-method, the data obtained was analyzed quantitatively and qualitatively. The quantitative data was edited, coded, and scored to ensure accuracy and clarity. A coding manual was constructed for the open-ended items before the actual coding and entry of such items were done. All coded items were entered into the computer and analysed with the help of the Statistical Package for Service Solution (SPSS) version 22. The descriptive statistics were used to analyze the qualitative data. Frequencies, percentages, tables, diagrams, and simple liner regression were used to present the results.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents the results and discussions of the study in line with the stated research objectives. The results and discussions were on the implications of the 2016 ban small-scale mining on livelihoods in the Tarkwa Nsuaem Municipality. The chapter is organized into two parts; the first focuses on the socio-demographic characteristics such as sex, educational background, origin and income of the respondents. The second part is devoted to the description of the responses in accordance with the research questions. With the help of the Statistical Package for Social Solution version 22, bar graphs, pie charts, tables, and simple linear regression were used to present the result.

Socio-demographic characteristics of respondents

The Socio-demographic characteristics of the respondents were considered because, according to Osei-Adu, Osei and Amponsah (2016), household size, the age, sex, educational attainment, perceived risk, and peer influence are the key predictors of one's decision to participate in a business venture. In this study, marital status and age of the respondents were not included since the study was only looking at how the ban has impacted livelihoods in the area. Table 2 gives the respondents' demographic information. As indicated in Table 2, 335 (88.6%) respondents were males and 43 (11.4%) females. The findings support the Organization for Economic Co-operation and Development (OECD, 2012) that men normally dominate the mining population.

In the local tradition, men are supposed to be the bread-winners. Hence if such a large number is engaged in the SSM activities, then a ban on the SSM will certainly have profound effects on the family.

Table 2: Gender of Respondents

Gender	**Number of Respondents**	**Percentages (%)**
Male	335	88.6
Female	43	11.4
Total	378	100
Education	**Number of Responses**	**Percentage (%)**
No formal Education	150	39.7
Formal Education	228	60.3
Total	378	100
Origin	**Number of Responses**	**Percentage (%)**
From the community	186	49.2
Migrant	192	50.8
Total	378	100

Source: Field Data, 2019.

With educational levels of the respondents the majority 228 (60.3%) indicated that they had received some formal education, while 150 (39.7%) indicated that they had not received any formal education. This finding supports the view of Communities and Small-Scale Mining (CASM, 2008) that the SSM is labour-intensive; that it employs both educated, semi-skilled and unskilled labour in spite that it is labour intensive. Ellis (2000); Fabusoro, Omotayo, Apantaku, and Okuneye, (2010), Khatun and Roy (2012), also say that educational experience determines the field of work an individual can exploit. Although the majority had some form of education, the number of those who had no formal education is relatively high; as such private study should be encouraged.

Again, the majority 192 (50.8%) of the respondents indicated that they are migrants while 186 (49.2%) are from the community. This finding confirms the fact that the SS miners consist of local people and migrants from within a country or from neighborhood countries (Lole, 2005). Most SS gold miners are poor migrants or seasonal workers who devote their time between mining and other economic endeavours (Phillips, Semboja & Shukla, 2001; the World Health Organization, 2001). The implication of this finding is that, when a ban is placed on SSM activities, the local community suffers, because the number of the indigenous is relatively high. There is the possibility for migrants to go back to where they came from.

According to the Communities and Small-Scale Mining (CASM, 2008), the SSM allows local people to earn cash. As presented in Figure 4, majority 202 (51.1%) were in the income group of less than GH¢1000 per month while 155 (41.0%) fall within the income bracket of GH¢1000 – 3000. Additionally 10 (2.6%) earn GH¢ 4000 - 6000 per month, with 20 (5.3%) earning GH ¢7000 and above.

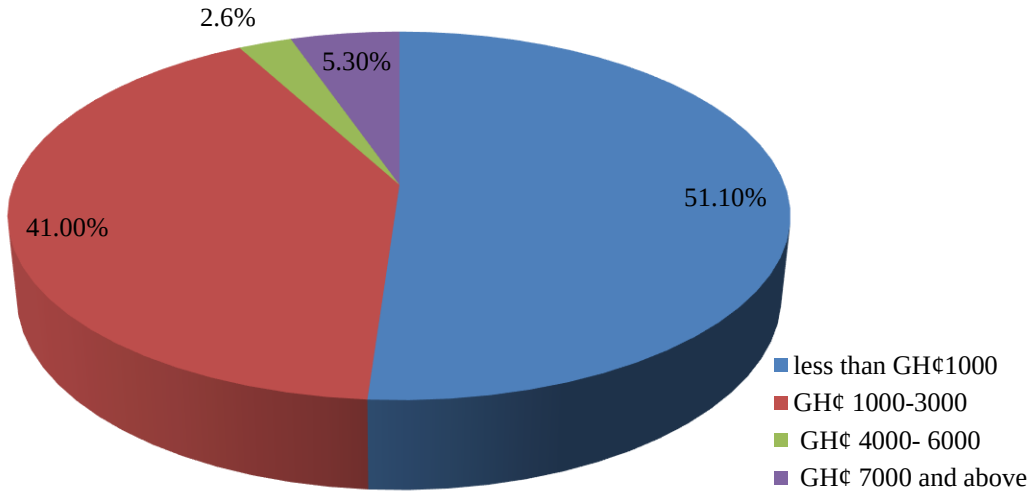


Figure 4: Income levels per month

Source: Field Data, 2019.

The findings support that of Lole (2005) who says that, SSM provides many benefits to mining communities such as employment and cash for families, and hence saves them from poverty. Similarly, the result also confirms that of Siegel and Veiga (2009) that the SSM is three to five times more lucrative a business than other small-scale activities.

Two people from the Agyei-Ben Small-scale concession explained these socio-demographic characteristics of respondents better in the focus group discussion. One of them had this to say:

> *It is the men who are mostly engaged in the SSM and are usually supported by the women. That it is advisable for people to get some level of education before engaging in this activity. This will help them to work effectively at the site (Male FGD,2019).*

Another gentleman also said the following:

> *The lucrative nature of the job does not only attract the poor but also students, teachers, farmers and even some MPs have some shares in this economic activity and many other people from afar and within the communities engage in this activity (Male FGD,2019).*

Factors that attracted people to the SSM activities in the study area

As seen in Table 3, 202 (53.4%) of the respondents said unemployment was the most important factor that attracted them SSM activities. Sixty-five (65) representing 17.2% gave school-dropout as the factor attracting people to SSM. Not happy with previous jobs accounted for 53(14.0%) respondents engaging in SSM while 45 (11.9%) were due to peer pressure with respondents with 13

(3.4%) indicating that cash, buildings, marriage and education attracted people to the SSM.

Table 3: Some drivers that influence SS miners to engage in SSM

Drivers	Number of Responses	Percentage (%)
Unemployment	202	53.4
School-dropout	65	17.2
Not happy with previous	53	14.0
Peer pressure	45	11.9
Cash, buildings, marriage and education	13	3.4
Total	378	100

Source: Field Data, 2019.

The findings are in line with the observations of the CASM (2008) which says that, SSM allows local people to earn cash. Despite that SSM is a "rush-type", chaotic and entrepreneurially-driven actiovity the motives of the miners in the study area indicated that, they are "fortune-seekers"; who want to 'get-rich-quick' (Hilson, 2009).

This means that if the ban was allowed to continue for a longer period, the possibility that unemployment in the country would have increased is high. The challenges associated with hardships and unemployment would have affected many people in the communities which could have triggered crimes or disrupted public order.

The researcher further sought for additional reasons that influenced people to engage in the SSM activities. The results are shown in Table 4. The majority (152 or 40.2%) indicated that, the SSM provides quick access to money. This was followed by 134 (35.4%) respondents who said that SSM is economically more rewarding than other activities. Fifty-nine (59 or 15.6%), said that the SSM does not always require any specialized skills and finally

33(8.7%). Responded that unemployment or underemployment forced people to engage themselves in the activities of the SSM.

Table 4: Additional Reasons that influence people to engage SSM

Additional Reasons	Number of Responses	Percentages (%)
SSM is economically more rewarding than other activities.	134	35.4
SSM provides quick access to money.	152	40.2
SSM does not always require any specialized skills to engage.	59	15.6
Unemployment/Underemployment compel people to engage in SSM	33	8.7
Total	378	100

Source: Field Data, 2019

The findings shown in Table 4 are in line with Lole (2005) who says that, SSM provides countless returns to mining communities. For example, it provides employment and cash for families, and hence alleviates poverty. Similarly, Siegel and Veiga (2009) have opined that the SSM is three to five times more lucrative business than other small-scale activities since it is hardship that drives people to this economic activity.

From personal observation from the field, many people purposely engaged in SSM because it provided quick access to money and economically rewarding. The implication of this is that, the ban is going to deprive many miners of their sources of livelihood. This explains why a lot of people complained bitterly and concluded that, crime rate has increased rapidly within the ban period.

During the focus group discussion, three discussants confirmed the findings as follows:

One aged respondent said this:

> *Unemployment, the rewarding nature of the job, quick access to money, Peer Pressure were some of the reasons why we engaged in this activity, although the activity is dangerous where one can easily lose his life (Male FGD at Aboso, 2019).*

Another person said:

> *if one is not a miner, and he proposed to a lady or wanted to rent a house, one was refused. So, by engaging in the activity, there is the possibility that one can get a woman to marry, and getting an accommodation to rent is assured (Male FGD at Tarkwa, 2019).*

Another youth said that;

> *to me, the cost of living is very high and people cannot depend on the small income from other activities hence they engage in the activity; in order to cater for other things such as family needs (Female FGD, at Effuanta,2019).*

The researcher went further identify respondents who had permits or licenses for their operation and those who did not, and yet operated. As presented in Table 5, majority 250 (66.1%) claim that they did not have permits (tickets) for their activities while 128 (33.9%) had permit for their operations.

Table 5: Permit or license before engaging the SSM

Permit/License	Number of Responses	Percentage (%)
Yes	128	33.9
No	250	66.1
Total	378	100

Source: Field Data, 2019.

The findings are consistent with that of Chilmaza and Rivas (2009) who say that most SS miners do not operate within an applicable or appropriate legal framework while others, operate within legal frameworks and hold land titles and government permits. The permit holders however, pay taxes to government, and they succumbed to environmental regulations.

During a focus group discussion at Tarkwa one of the discussants confirmed this when he said that:

> *it is our concessionaire to whom we look up to if government officials come around to verify if we have permit for our operations because we did not acquire the land from the government due to the long procedures in the acquisition of permits (Male FGD, 2019).*

The researcher asked the respondents their sources of permits or licenses due to the answers that were given in Table 5. Figure 5 shows the source of permits or license for the SS miners. Majority (238 or 63%) of the respondents did not have permits or licenses for their operations. The Concessionaires who had permits were 101 (26.7%), and 21 (5.6%) obtained permission from the Mineral Commission while 18 (4.8%) from obtained permission from the local chiefs.

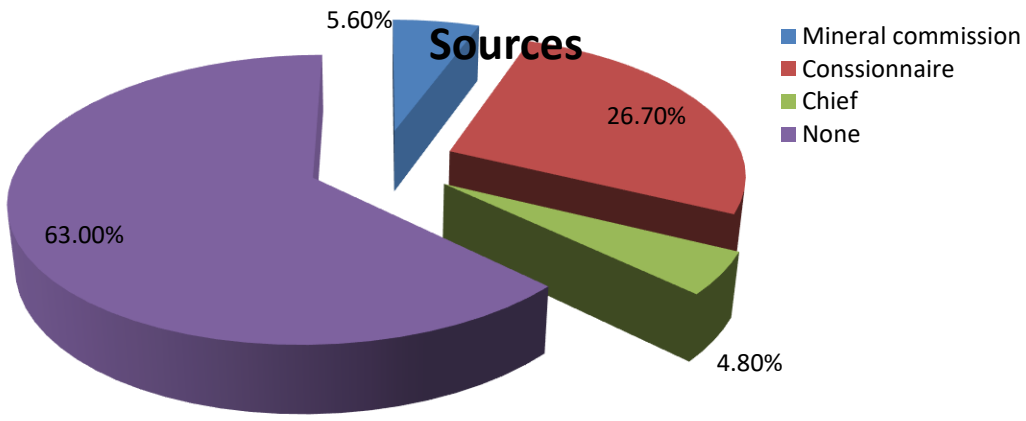


Figure 5: Source of the permit or license

Source: Field Data, 2019.

The findings are in line with Hentschel, Hruschka, and Priester (2003) who say that, the various governments of Ghana have established a number of institutions to regularize the SS operations in the country. However, certain deviants called (loti) do not hold any permits. They go to the field in the night, and dig channels to collect the gold. It is mainly such people who die in collapsed pits. Others go to the chiefs or landowners and pay fees to mine. The two categories do not pay any tax to the government. The majority who could not specify their permit might probably be part of the roaming labourers.

Some of the unregistered concessionaires with their hired labourers stressed this finding. This is what one concessionaire said:

> *As for us, we acquire the land from either the chiefs or landowners to whom we pay the amount charged. Based on the agreement we make with them, whatever gold we get, we share them (Male FGD, at Nsuaem 2019).*

Another had this to say:

> *It is to the local chiefs that we sell our gold therefore we do not pay any tax to government. The reason being that acquiring the land from the government involves long procedure. It also involves wastage of time and money. We find the chiefs and landowners as easy and straight forward places to get the land without any delay (Male FGD, at Nsuaem 2019).*

The implications from the focus group discussion above are that there is always loss of revenue to the government every year as all these unregistered SS miners do not pay their taxes. Therefore, there is the need for the miners to be educated on the importance of paying their taxes. Similarly, government institutions responsible for the environmental regulations and permits should put some incentives or packages that will push people to have permit and pull illegal participants.

Table 6 shows the previous job of the respondents before they engaged in the SSM activities. From Table 6, majority (90 or 23.8%) of the respondents were either mechanics, sprayers, plumbers or electricians before engaging in the SSM activities. This was followed by eighty-seven (87 or 23.0%) who were civil service workers, while thirty-eight (38 or 10.1%) respondents said they were into trading. About 35 (9.3%) of the respondents said that, they were engaged in either fishing or farming. Twenty-one (21 or 5.6%) of them said that, they were engaged in mining before coming into contact with SSM.

Some 37 (9.8%) of them were either cleaners, drivers or waiters before engaging in SSM. Seventy (70 or 18.4%) however said that they did not have any skills.

Table 6: Previous work before engaging the SSM

Previous work	Number of Responses	Percentage (%)
Mechanics/sprayer/plumber/electrician	90	23.8
Public worker (civil service)	87	23.0
None	70	18.4
Trading	38	10.1
Cleaner/driver/waiter	37	9.8
Fishing/farming	35	9.3
Miner	21	5.6
Total	378	100

Source: Field Data, 2019.

The findings confirm to the observation made by Hilson (2009) that, people engage in the SSM operations in order to help them develop their basic skill or training acquired so that, it can transform them from unskilled into semi-skilled and skilled workers.

This means that the 70 who said they did not have any skills certainly, came from those 150 who had no formal education in Table 2. Hence, the ban on all these people means that they are really going to suffer from the adverse effects of the ban if they were unable to train themselves in other areas. Concessionaire during an interview said this:

> *'the SSM is mostly engaged by people who have been denied employment by the LSM. I joined this activity when I was sacked from my former job. I invested the money given in this activity. Before that, I went through all the procedures in order for me to acquire the permit, land, and other equipment needed to carry this activity'. I have been following strictly the policies concerning this job but what has been the challenged*

is the pollution we cause to the environment especially water quality. The reason being that our activity usually involve the use of water of which unfortunately tend to destroy them. (Male IDI, at Tarkwa2019).

A 37-year-old man said the following to support the above.

Most of us acquired some sort of skills with which we hoped to be gainfully employed in the large-scale mining groups if the authorities wanted to help us. Unfortunately, we have struggled but to no avail. So, the only organisation that can help us is the SSM. If the government really wants all the people to operate with permit and also eliminate illegal participation of the illegal small-scale miners, it has to make it easy for people to have the license to operate (Male FGD, at Aboso 2019).

Following the results and observations from the respondents and comparing the first objective to the conceptual framework (Fig 2), miners were vulnerable in terms of unemployment, school dropout, pressure from friends, not happy with previous work, and other reasons. Fortunately, several of them, had acquired some basic livelihoods or assets such as the basic skills on which they depended before they engaged themselves in the SSM activities. Their access to the transforming structures and processes enabled them to have permit to mine.

Assets of the miners before engaging in the small-scale mining

With regards to assets before engaging in the mining activities, emphasis was placed on the livelihoods of the SS miners. According to Ellis and Freeman (2004), livelihood comprises the occupation that helps people to earn a living

as well as resources, capabilities and institutions that constraint or assist people in pursuing a given livelihood activity. Figure 6 shows the livelihood of the SS miners before engaging in the SSM activities. The majority (87) indicated that, their assets before engaging in the SSM were the shops they owned. This was followed by seventy-two (72) respondents who said that, they owned farms before engaging in this economic activity. Sixty-six (66) respondents used to work in an industry for their source of livelihood before engaging in the SSM activities, while 79 respondents said, they owned vehicles as their assets before engaging in the SSM. However, 41 respondents said SSM/LSM has been their assets. Those who depended on fishing as their asset were 19, while those who did not have any assets before engaging the SSM were fourteen (14).

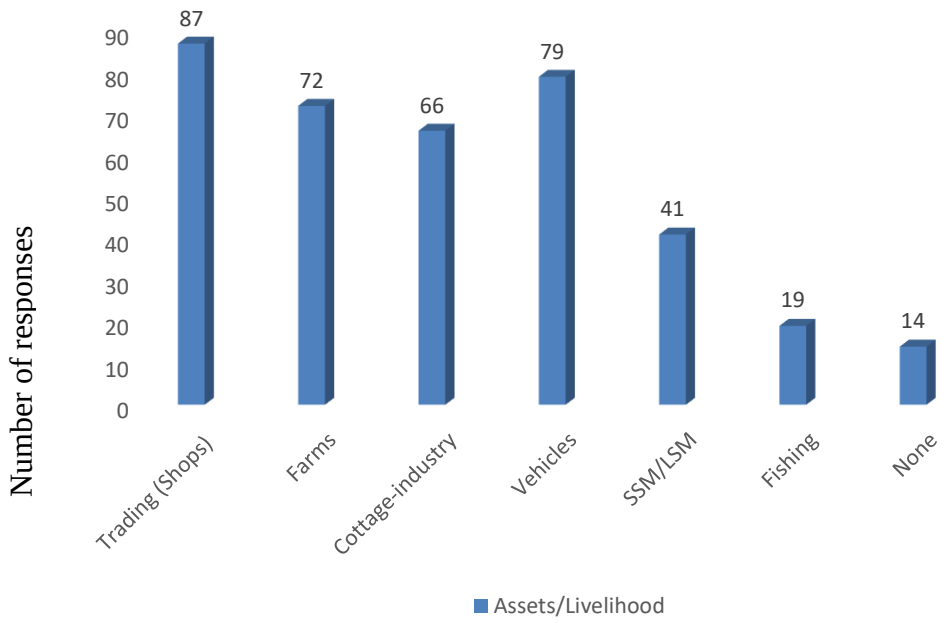


Figure 6: Assets or livelihood of SS miners before engaging in SSM

Source: Field Data, 2019.

The above results are in line with those of Ellis (2000) who opined that, communities widen their livelihoods to sustain them adequately when the main occupation collapses.

The observation made here indicates that, only few respondents did not have any assets while the majority responded that they were owning assets. It could mean that the returns from the assets were not enough to the owners or they wanted to increase the assets available. This implies that if the ban were to last for long, many will have their asset available to them stagnated, which will undergo depreciation.

An in-depth interview, interviewee had this to say:

> *'commercial vehicles, houses, and my formal job were my main livelihood assets before engaging in the SSM. I am an owner of those commercial vehicles and two houses' (Male IDI, at Tebirebe 2019).*

Another person during the focus group discussion at Tebirebe said that:

> *I had my own farm, shops and taxis I acquired through the SSM.I gave them out to people to work with. Unfortunately, those people have left them and have joined me in the SSM with the hope of earing more income. And in fact, when they came, some have been able to earn some cash and some have even bought cars and land. They have become owners of some assets (male FGD,2019).*

The opportunities derived from the assets

Mwaipopo, Mutagwaba, Nyange and Eleanor (2004) have concluded that SSM communities fare better in terms of poverty alleviation than other non-

mining communities, and that has the potential to increase people's livelihood security through wealth creation, asset accumulation, and investment. Table 7 contains the findings on the asset or livelihood obtained from the SSM while engaged in the SSM. Most respondents 294 (77.8%) indicated that, they were able to earn cash while 49 (13.0%) said they were able to put up buildings. Those who was able to acquire lands were 20 (5.3%), while 11 (2.9%) were able to educate their children. Others 4 (1.1%) performed other activities with the profits earned through the SSM activities.

Table 7: Asset or livelihood received from the SSM while engaged in the SSM

Asset/Livelihood	Number of Responses	Percentage (%)
Cash	294	77.8
Building	49	13.0
Land	20	5.3
Education	11	2.9
Others	4	1.1
Total	378	100

Source: Field Data, 2019.

The findings support both Siegel and Veiga (2009) and Lole (2005) who have said that the SSM is a lucrative a business than other small-scale activities which aids mining communities, through employment and cash for families. The main observation made is that, the miners earned good income from the activity. This probably explains why many people in mining communities, and miners are easily prone to poverty all of a sudden whenever a mining company collapses or a ban is imposed.

During the focus group discussion at Tarkwa, two discussants confirmed this: One of them had this to say:

> *While engaged in the SSM, we earned cash; we are now landowners; we have been able to further our children's education even to the university. We now have cash to sponsor other activities such as farms, and shops. Some ladies in the community who used to engage in prostitution at the Tarkwa train-station have stopped and now they are engaged in petty trading such as selling foodstuffs and other items to the SS miners (Female FGD,2019).*

Hilson and Ackah-Baidoo, (2010) say that SSM does not only attract the poor but it also attracts farmers, the redundant public-sector employees, teachers, and other educators, and students to work in order to earn money to cater for their needs. From this statement, the researcher tried determine if it was mainly the income that attracted people to engage in the activity. The results is as shown in Figure 7. From Figure 7, 118 (31.2%) respondents indicated that their income per month was between GH¢3000-6000. This was followed by 99 (26.2%) who said that their income was GH¢7000 and above. Eighty-four (22.2%) indicated that, the income earned per month was less than GH¢1000 and while 77 (20.4%) indicated that their income was between GH¢1000-2000 per month.

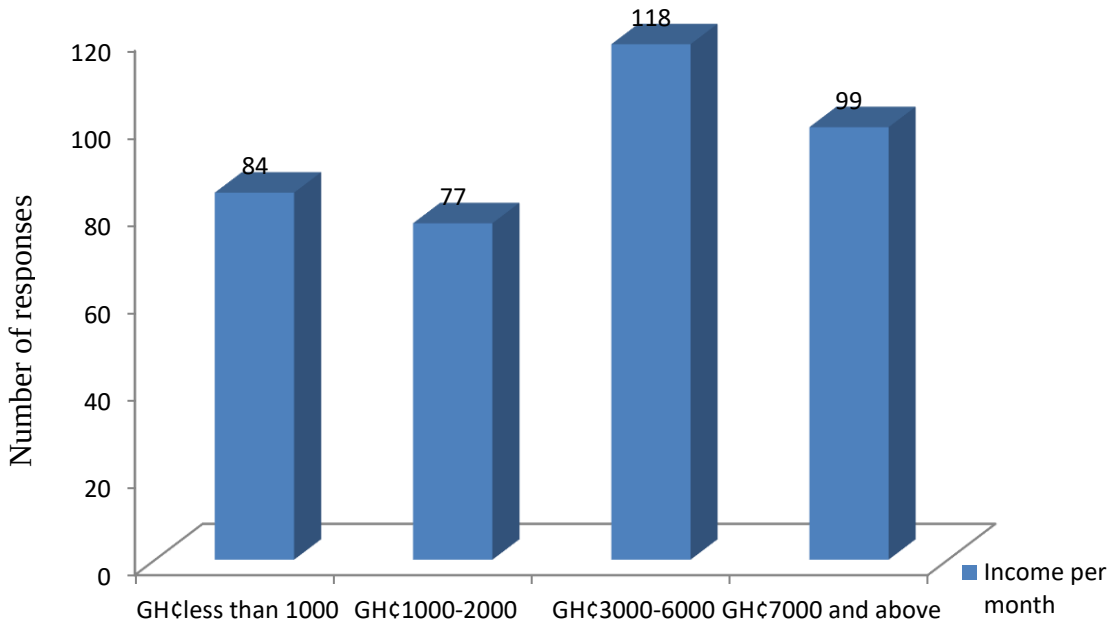


Figure 7: Income earned from SSM before the ban

Source: Field Data, 2019.

The finding confirms that of the CASM (2008) that says that, SSM is a production system that allows local people to earn cash.

The implication is that, it would be difficult for the affected miners to do any other jobs which do not offer the same rewards as the SSM does. Therefore, the ban on SSM would have rendered the affected miners more vulnerable if the ban was not lifted on time.

In line with Figure 7, the present researcher elicited for the views of the respondents on whether they were satisfied with their income. Table 8 gives the responses. Two-hundred and sixty-threee (69.6%) responded that the income earned was very good, whilst 56(14.8%) said it was good, with 56 (15.6%) saying that it was not good. This income differentiation might probably may be due to one's position, skill or year of entry.

Table 8: Description of the income earned

Description	Number of Responses	Percentage (%)
Very good	263	69.6
Good	59	15.6
Not good	56	14.8
Total	378	100

Source: Field Data, 2019.

The implications here is that if the government want to establish a business for all those affected miners, then the nature of the job should be attractive like that of the SSM in terms payment (enough salary) that will not push them (miners) to go back to SSM activities.

At this point, the respondents were asked how the SSM had improved their lives. Table 9 shows the various ways SSM had improved the miners' lives. Majority (45.8%) responded that through the SSM activities, they were able to cater for their family, 41.0% responded that, it had prevented them from crimes, 8.5% responded that they were able to further or send their relatives to school, build their house and even marry, whilst 4.8% responded that it had solved their psychological problems that they faced when they were unemployed.

Table 9: Ways the SSM improve personality

Ways	Number of Responses	Percentage (%)
Catered for family needs	173	45.8
Prevented them from crimes	155	41.0
Education, building, married	32	8.5
Solved psychological problems	18	4.8
Total	378	100

Source: Field Data, 2019.

These findings support that of Hoedoafia, Cheabu and Korang (2014) that, the SSM activities have contribute positively to improve their lives in terms of employment, health, educational, and the basic family needs.

The observation made is that, while much of the money earned from the SSM was spent on family members, it also prevented them from committing crimes. One concessionaire said this during one interview:

> *'I was able to acquire other assets in addition to what I had before I engaged in this activity. The amount of income I used to earn per month was above GH¢7000 which was a very good amount, this helped me in many ways' (A male IDI,2019).*

During the focus group discussion at Effunta, one discussant confirmed this as follows:

> *Some of us who used to engage in criminal activities have stopped because psychologically it was haunting us, our families were not happy with what we were doing. In fact, we were not respected by the public. However, ever since we found ourselves in the SSM activities, people accord us with respect because we are no more engaged in crime and we are able to cater for our families (Male FGD,2019).*

From what the discussants said, it can be deduced that the SSM operation really helps the miners. Hence policy formulators need not to take rush decisions on banning any economic activities.

The next objective was to investigate assets gained through SSM before the ban. The conceptual framework (Fig.2), states that influence and access to transforming structures enable people to improve or reduce their livelihood. The

findings reveal that access to, and influence from transforming structures and processes, helped them to earn a living (such as cash, buildings, furthering their education, solutions to psychological problems, cater for family need) out of their livelihood assets that were available to them. This means that all the benefits generated from the activity had positive reflection on their livelihood outcome. Unfortunately, the respondents, they did not know that the activity affected the natural resource base through environmental degradation that principally led to ban. The next discussion is on the effects of the ban on the livelihoods of the miners.

Effects of the ban on the assets and livelihood of the miners

According to Amoako and Abew (2009), people begin to live in poverty after an SSM shut-down, because they depend solely on that business. To investigate the implications of the ban, the present researcher asked the respondents the extent to which they were affected by the 2016 ban. Table 10 shows the responses. The majority (334 or 88.4%) indicated they were greatly affected by the ban. Only 44 or 11.6% said that they were not affected.

Table 10: Socio-economic effects of the ban on people's livelihood.

Responses	Number of Responses	Percentage (%)
Yes	334	88.4
No	44	11.6
Total	378	100

Source: Field Data, 2019.

This result confirms the findings of the Chandrashekar (2018), that the livelihoods of over three million Ghanaians were affected between the two years 2017 - 2018, due to the shutdown of mining, banking and the industrial sectors in the country.

This implies that, the ban would have caused an increase in the unemployment rate in the country. This would have increased the financial burden on the government since many affected miners and other stake-holders would have not be able to pay any form of tax to the government for any development.

During the focus group discussion at Effunta, a discussant confirmed this as follows:

> *I have been greatly affected. Life has become very difficult for me. Those of us who were rich are now living in poverty. Some people have become confused, and they want to engage in criminal activities, such as armed-robbery, and prostitution that will save them from the hardship. Some traders in our communities have been complaining bitterly that business is not good as it used to be (Female FGD, 2019).*

In relation to Table 10, the researcher asked about the ways the ban affected the respondents' livelihood. From Table 11, on financial problems 146 (38.6%) responded with 130(34.4%) saying the ban has affected them as well as their community with 16(4.6%) have not been affected by the ban. 124 (32.8%) expressed their view on hardship and joblessness question with 110(29.1%) indicating that of course the ban affected them with 14(3.7%) saying they did not experience any effect in terms of hardship and joblessness probably, they had an alternative. One hundred and ten (110 or 29.1%) respondents said the ban brought hardship and joblessness to them while 14 or 3.71% said it did not affect them. On breakdown of family 39 (10.3%) responded with 37(9.8%) saying the ban has destroyed their family relationship since maybe they happened to be breadwinner of their families, with only

2(0.5%) indicating that that their family are intact; while 38 (10.1%) responded on increased crime rate with 33(8.7%) massive impact of the ban on their communities with 5(4.6%) experiencing the impact from crime rate. said it did not. On the question of school fees, 31 (38.2%) responded, with 24 (6.3) indicating they were unable to pay their children fees and catered for family, while 7(1.9%) said they were not affected by the ban maybe because they had insurance for their wards education or they were in one of the government schools.

Table 11: Ways the ban affected the miners and their communities

Ways	Number of Responses	Yes	No
Financial problem	146(38.6%)	130(34.4%)	16(4.6%)
Hardship and joblessness to the community.	124(32.8%)	110(29.1%)	14(3.7%)
Partners have left (Breakdown of family relation)	39(10.3%)	37(9.8%)	2(0.5%)
Increased in crime rate	38(10.1%)	33(8.7)	5(4.6%)
Unable to pay children school fees/ cater for the family	31(8.2%)	24(6.3%)	7(1.9%)
Total	378	334	44

Source: Field Data, 2019.

These findings are consistent with those of the Chandrashekar (2018), and of Mukhovha (2008), that a ban on the SSM affects the livelihoods of many people, because it brings hardships and poverty. Those who are unemployed engage in illegal activities such as prostitution, thuggery, drug and substance abuse because they do not have the education or skills needed for other jobs. Similar to the above, Sen (1997) states that, banning any socio-economic activity leads to psychological harm, health problems, loss of motivation for

future work, and even leads to loss of relationships and family life (due to unemployment and poverty). This, ushers in detrimental or damaging effects for social relations because the ban destroys the harmony and unity of families, and jeopardizes many amicable relations between friends and relatives.

From observation, the ban imposed not only financial problems, but also social and psychological problems. Such outcome certainly could have led miners to commit crimes. This implies that, if these miners were to engage themselves in any social cankers due to the implications from a ban, then the security of these mining communities or the nation as a whole is at stake.

From the focus group discussion at Tebirebe, one discussant said:

> *We are disappointed in the government because it did not provide the SS miners alternative jobs. Because of that we are experiencing problems such as financial hardships and crime associated with unemployment, and now we are unable to cater for our ward's needs. Crime rates have increased in our community. Even daytime robbers will get into a house and steal with impunity. This is because those who used to engage themselves in criminal activities before the ban stopped, and joined the SSM, but the moment the government placed the ban, all such people returned to their bad ways. In fact, some people now are faced with problems that forced their partners to leave them (Female FGD, 2019).*

Gallie, Gershuny and Vogler (1994), have found that people who are unemployed are prone to greater vulnerability problems, and they are exposed to psychological and financial difficulties which, in turn, make it more difficult

for them to escape poverty. The present researcher asked the respondents how the ban affected them individually. The answers are given in Table 12. Majority (192 or 50.8%) responded that the ban had affected them financially, 138 (36.5%) said they were affected psychologically and 48 (12.7%) indicated that they were engaged in illegal activities such as prostitution, thuggery, drug and substance abuse.

Table 12: Ways the ban affected individual lifestyles

Ways	Number of Responses	Percentage (%)
Psychological problems	138	36.5
financial pressures	192	50.8
Engagement in illegal activities (prostitution, thuggery, drug and substance abuse)	48	12.7
Total	378	100

Source: Field Data, 2019.

These findings support those of Mikesell, Lusterman and McDaniel (1995) who says that when people, such as miners become unemployed due to a ban, they are either tempted to go back to their illegal or criminal activities. Indeed, the poor are often led to crime because of their deficiency and acute sense of want (Bangane, 1999). In support of Mikesell, Lusterman and McDaniel (1995) and that of the findings in this thesis, GHANA MMSD When parents are unable to cater for their wards' education, the children stop attending school, and end up living on the street. This leads them to abuse illegal substances, and go into violence and civil conflict (Knowles & Behrman 2003). This means that the financial challenges possibly have some psychological effects on the affected miners and those who could not with-stand it got themselves in criminal activities.

From a focus group discussion at Nsuaem one said that:

> *Financial challenge was a one major problem many people were confronted with in the mining community. Crime rate rapidly increased because criminals needed money to provide basic needs for themselves and their family due to high cost of living. My children who used to attend Golden Age School Complex, a private school were sacked because they were owning school fees. My husband sold some of his assets to pay for their fees but we couldn't pay the following term's fees because there was no money. My husband and I had no option but to send the children to one of these government schools which was not the wish of our children (Female FGD,2019).*

According to Schmid, Speckesser and Hilbert (2001), training and education are considered the most effective remedies for unemployed people because they can gain other basic skills to work with whenever there are changes in their economic activities, especially when their current jobs are not permanent or secured to engage in. The respondents in the present study were asked if the government gave them any support that could help them.

Figure 8 shows the outcome. Three-hundred and thirty-one (87.6%) responded that the government did not provide any kind of support to them. However, 47 (12.4%) responded that there was some support. They have received some training at the Paa Grant University of Mines and Technology (UMaT).

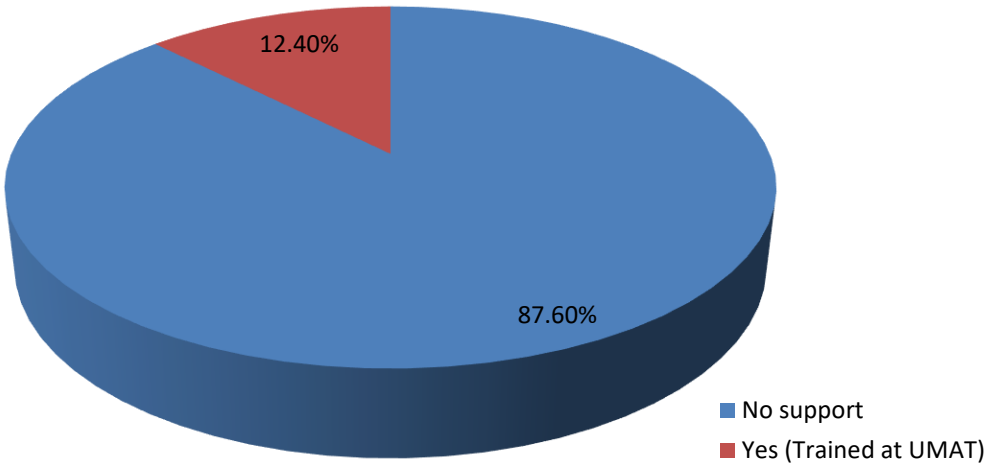


Figure 8: Support Government provided to those whose livelihoods were affected due to the ban
Source: Field Data, 2019.

The findings enforce those of to Baah-Boateng and Turkson (2013) who suggest that government should put in place employment intervention or policies whenever a ban is imposed on illegal economic activities.

A young man at Tarkwa suggested that:

> *The government needs to provide alternative jobs or support that will help people to withstand the shock they experienced. If the government does not do anything about the problem, or if any government repeats such mistake, it shall be voted out. The government and its officials should just put themselves in our shoes. At least we pay tax, and they should use it to empower or to sustain us till the ban is lifted completely (Male FGD, 2019).*

Mengwe, (2010) has observed that, migrants who flock into mining areas in search of jobs move back to their places of origin, or search for different jobs whenever mining activities are shut down.

Respondents were asked why miners do return to their home-towns whenever there is a shut-down. Table 13 shows the reasons why people migrate

to their home-town. The majority (118 or 31.2%) said that, some miners migrate to other places in search of a different job. Seventy-nine (20.9%) said people migrate because they owe banks and money-lenders, whilst 56 (14.8%) migrate because their machines get destroyed by the military. Further thirty-eight (10.1%) said they do so because of the threat from the military. Eighty-seven (23.0% did not give any reasons.

Table 13: Reasons why people have migrated to other places

Reasons	Number of Responses	Percentage (%)
Look for job	118	31.2
No reasons	87	23.0
Some were owing banks and individuals because their machines have been destroyed by the military	79	20.9
Due to threat from the military	56	14.8
Some have been imprisoned	38	10.1
Total	378	100

Source: Field Data, 2019.

The finding support that of Sobang (2014) who says that people migrate to other places for new livelihoods or as a coping strategy when they lose what they have. They migrate due to either lack of natural resources availability, or military conflicts, or changes in institutions, laws and policies (Lee & Neves, 2010). Williams (1976) is of the view that when a ban is imposed on some economic activities, there occur shocks; therefore, some miners look around or migrate to other places to look for alternative jobs.

This means that, miners had to migrate, because, most of them do not have the qualification to engage in other activities except the illegal mining, although military harassments were also a contributing factor.

A discussant at Effuanta buttressed these findings during the focus discussion when he said that:

> *Before the ban, many concessionaires went for loans from the banks to invest in the business. Machines and other things that help in the production were purchased. Unfortunately for the concessionaires, when the SSM was banned, all the money that was borrowed from the banks got lost. This was due to the fact that we tried to operate in the night. Unfortunately for us, the military attacked us one night and we were brutalized. They set fire on our machines and everything got destroyed. Those who were hiding said what happened that night was very frightening. Some were killed, some dragged on the ground as if they were not human-beings. What happened was inhuman! (Male security FGD, 2019).*

To determine the strength of the effect of the ban (the independent variable) on the livelihoods (the dependent variables) of the small-scale miners, the simple linear regression analysis was performed. Table 16 present the result of the analysis.

Table 14: Regression Analysis on the effect of SSM ban on livelihoods

Regression Statistics				
Multiple R	0.108748			
R Square	0.411826			
Adjusted R Square	0.19191			
Standard Error	0.378795			
Observations	378			
	Coefficients	**Standard Error**	**t Stat**	**P-value**
Intercept	0.697106	0.070602	9.873811	1.36E-20
Livelihoods	0.12872	0.060761	2.118453	0.034794

Source: Field data 2019

The regression model yielded R^2, (the proportion of variance in the livelihoods that could be explained by the ban) value of 0.41% and an adjusted R^2 (the proportion of variance in the dependent variable) of 0.19%. The regression also obtained a p-value of 0.034 which is less than the adopted value of 0.05%. Stating that the result of the regression is statistically significant at 0.05%. As such it can be concluded that the ban on SSM negatively affected the livelihoods of the miners; and that it resulted in 19.1% deterioration in the livelihoods of the small-scale miners. Therefore, the result obtained from the regression analysis, can be concluded that, the H_0 has been rejected in favor of H_1 which states that the ban on SSM negatively affected the livelihoods of people in the study area.

In Peru, Bebbington, Bury, Mu˜noz and Scurrah (2008a) have acknowledge that despite the fact that the SSM enhances standard of living, it creates immense challenges for livelihood stability and environmental sustainability. The present researcher went further to elicited respondents' view or perception about SSM and the environment. This was done because it was due to the pollution of the environment that facilitated the imposition of the ban. Table 15 gives the result. Ninety-three (24.6%) of respondents said that SSM creates employment and is not associated with environmental pollution. Ninety-one (91 or 24.1%) said SSM causes pollution whilst 69(18.3%) said it creates employment and it is associated with environmental pollution. Also 62 (16.4%) said that SSM is dangerous to human health, while 43 (11.4%) opined that there is nothing wrong with it. Furthermore 20 (5.3%) said that the SSM should be backed by law. Those who responded that SSM should be backed by law are in agreement with Holden (2007), who observed that there had been growing

interests by governments on cooperative monitoring and on environmental management programmers, especially in indigenous areas where the SSM is done.

Table 15: People's view on the SSM and on the environment

View	Number of Responses	Percentage (%)
It creates employment and it is associated with pollution	69	18.3
It is normal and there is nothing wrong with it	43	11.4
It causes pollution	91	24.1
It creates employment but not associated with pollution	93	24.6
Dangerous to human health	62	16.4
It should be backed by law	20	5.3
Total	378	100

Source: Field Data, 2019.

The findings are also consistent with those of researchers such as Mu˜noz and Scurrah (2008a) who consider the SSM as one of the necessary evils of modern world. Despite the fact that it provides materials required to sustain quality of life, it has also brought in its wake, devastating impacts on the environment as well as on the socio-economic conditions of local peoples. The miners thus know precisely that their activities cause environmental pollution.

The SSM is especially criticized because of the criminal activities related to miners and the damage they do to the environment (OECD, 2017). As such the study further asked the respondents the various ways the SSM had affected the environment. The results are as shown in Figure 9.

From Figure 9, 203 respondents stated that SSM has resulted in land, air, and water pollution, while 110 said farmlands have been destroyed. However, 60 responded that it had not caused any pollution.

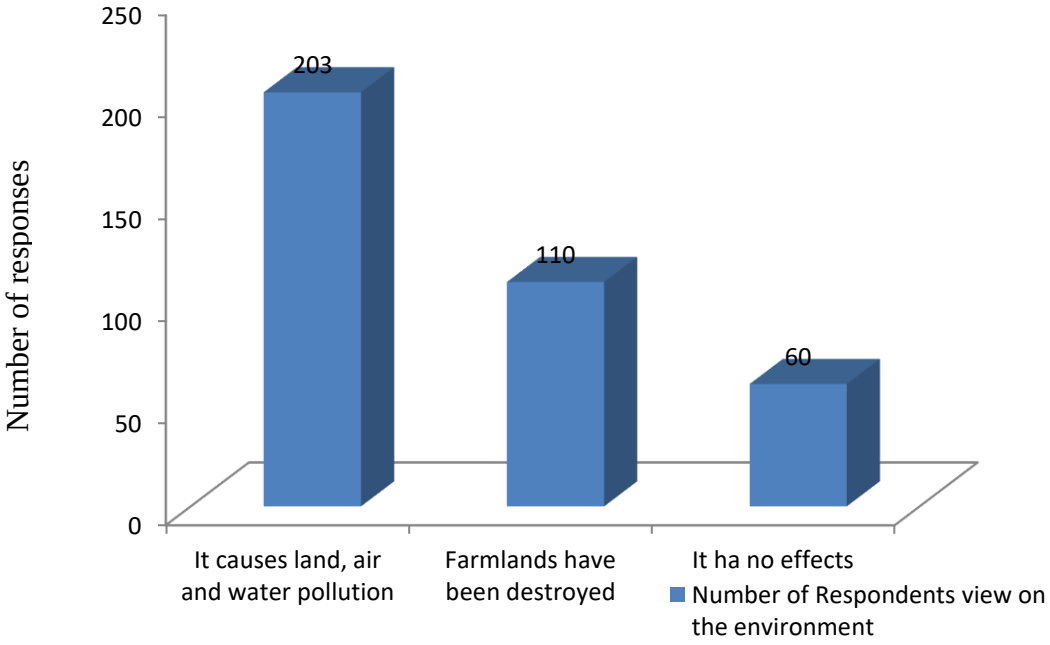


Figure 9: Ways the SSM has affected the environment

Source: Field Data, 2019.

The responses support the findings of some researchers (Akabzaa, 2000; cited in; Ofei –Aboagye, Moi, Al-Hassan, Akabzaa, & Ayamdoo, 2004) who say that SSM operations increase sedimentation. This occurs because some operators discharge poisonous chemicals into rivers, making them unsafe for human use Personal observation by the present researcher in the field showed that several water sources in the mining areas had been polluted by the SSM operations. Similar to the findings, Vagholikar and Moghe (2003) say that, the destruction of the Amazon rainforest is due to the epidemic of illegal mining that has disrupted the living conditions of the natives.

The implications here is that the pollution of the environment is a problem because, it was having negative impacts on those engaged in farming, and fishing and as well as those who depended on these water bodies for their domestic purposes.

This was stressed by a young man during focus group discussion at Aboso that:

> *The activity is associated with environmental pollution but we cannot let the resources remain in the ground while we go hungry. This is because if the income earned from this activity is compared with that of someone who works at the office, the SSM's is far better. That is why this activity, though degrades the environment and also kills or affects human health, we still engage in it. So, I, in particular engage in the activity due to its economic rewards. So even if it affects the environment, for me, I do not have any problem with that (Male FGD, 2019).*

The main goal of environmental protection is the achievement of sustainable development (Pallangyo, 2007). As such, many countries in the world are trying to adopt strategies that will protect the environment (Pallangyo, 2007). In other to establish the truth in this in the study area, the present researcher asked the respondents whether the ban had had any effects on the environmental quality and the health of the people. Table 16 shows the responses. Majority (209 or 55.3%) said the ban had had effects on environmental quality and on the health of the surrounding people. One-hundred and sixty- nine (44.7%) said it had had no effect.

Table 16: Views on whether the ban can affect the environmental quality and the health of people

Responses	Number of Responses	Percentage (%)
Yes	209	55.3
No	169	44.7
Total	378	100

Source: Field Data, 2019.

The implications of the responses are that should the ban had lasted for more years, there was the likelihood to see improvement in the environment and health of the people.

According to Pushp and Jain (2013) the Supreme Court of India in September 2003 put a ban on ore mining in Goa. Nine years later, it was found that the ban had brought positive impact on the socio-economic activities of the surrounding communities

Figure 10 shows the various ways the ban could have affected environmental quality. Majority (33.3%) indicated that it could have cleaned water resources and helped to maintain clean environment whilst (28.4%) said that the ban could have helped to prevent further pollution. However, (34.7%) said that there would to be no change in the environment while (6.9%) did not have any suggestions.

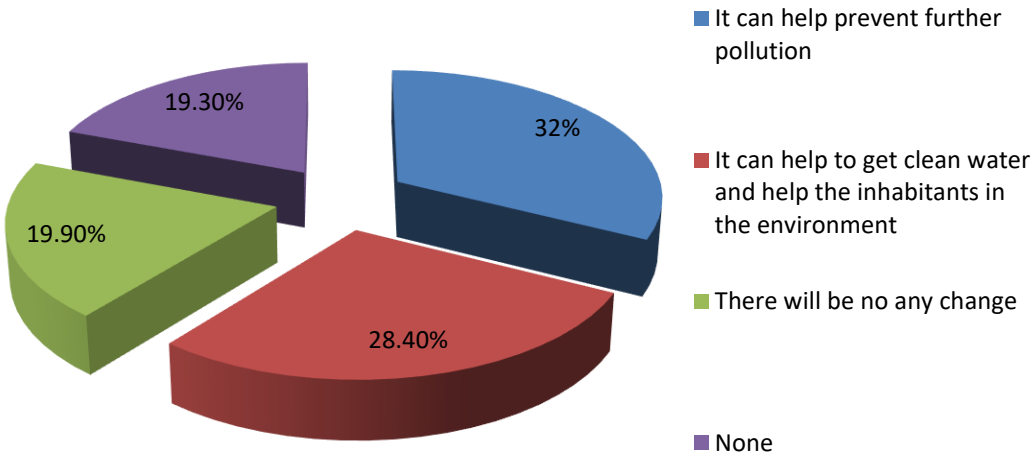


Figure 10: Various ways the ban can affect the environmental quality

Source: Field Data, 2019.

The findings support that of Priyanath (1999), who said that, residents of the villages around Netravali, Sanguem, Goa reported that, there was tremendous improvement in the quality of stream-waters when the mining was stopped. According to the residents, there was significant improvement in the quality of environment. Springs that were earlier-on dry, began to flow as a result of the ban that was placed on mining.

A concessionaire during interview had this to say:

> *'the ban did not have much effect on my livelihood because I had an insurance for my firm. The only challenge I was confronted with was that, I was unable to give to my labourers the amount of money I used to pay them. But I am aware that some of the concessionaire have run away due to their huge indebtedness. However, government made provision for all of us to be enrolled into the technical and the vocational institutions at the expenses of the government. This was done so that after the training we would rather depend on the skills acquired so that that will help us in the SSM operations, and if you are not interested in to engage in the SSM again, then one can use the skills and training acquired to start a business. Because it was not compulsory, only people participated in that exercise. What I could say on the ban and the environment is that, some of our activities pollute the environment but I think the ban can help prevent further pollution' (Male IDI,2019).*

One gentleman during focus discussion at Nsuaem said that:

> *For us, we do not think that there will be any changes or improvement in the environment and on the health of the people as far as mining (both the large and small scale) continues to operate. For a change to come, all mining activities have to be banned completely because the environment has been polluted and many people are facing its consequences (male FGD,2019).*

From the conceptual framework (Fig.2), SS miners find themselves in the vulnerability context whenever they engage in destructive activity. Environmental degradation for example leads to the transforming structures and processes that necessitates the placement of temporal bans. The effects from the transforming structures and processes also affect other livelihood assets of miners (human, financial, social, and physical). That is, many become jobless, faced with financial challenges, breakdown of family relations (divorce, other have been killed and imprisoned), loss of other assets (machines for production) and increased in crime rates. These caused many affected miners to develop new livelihood strategies to cope with the adverse effects of shut-down.

The livelihood strategies adopted after the ban

Livelihood strategies serve as the products of choice and constraint because people take different coping strategies when there are changes in their livelihood (Start & Johnson 2004). In order to know how the miners coped with the ban, the respondents were asked the strategies they adopted. Table 17 gives the various responses. On-hundred and thirty-one (35.7%) rested or did nothing, while 69 (18.5%) engaged in farming/trading/menial jobs. Also 70 (18.3%) took that time as an opportunity get better training at the University of Mines

And Technology (UMaT), with54 (14.3%) engaged in sand winning. Furthermore, 28 (7.4%) turned to mechanic/welding/spraying/plumbing works. Some 22 (5.8%) engaged in illegal activities during the night.

Table 17: Strategies that were adopted to cope with the ban on SSM

Strategies Adopted	Number of Responses	Percentage (%)
Resting/Did nothing	131	35.7
SSM/Sand winning	54	14.3
Farming/trading/menial jobs	69	18.5
Mechanics/welding/ spraying/plumbing	28	7.4
Went for better training at UMAT	70	18.3
Engagement in illegal activities (during the night)	22	5.8
Total	378	100

Source: Field Data, 2019.

The findings agree with those of Mikesell, Lusterman and McDaniel (1995) who says that when people such as miners become unemployed due to a ban on their livelihood, they are either tempted to go into illegal or criminal activities because they spend much of their time doing nothing, are under financial pressure or are frustrated.

During the focus group discussion at Tarkwa, one miner said the following:

> *The SSM pays well and if we compare the income from it with other economic activities, we will conclude that the other jobs do not offer great rewards. What they offer is nothing to write home about. So, we were all the time waiting for government to lift the ban (Male FGD, 2019).*

Ellis (2000) says that in the pursuit of livelihoods, communities may earn their livelihood by widening their income sources; that is, by engaging in activities that can sustain or provide them adequately when the main occupation

collapses. The current economic activities of the respondents were therefore investigated. Table 18 presents the responses. The majority (147 or 37.3%) of the respondents were engaged in the SSM activities, with 61 (16.1%) engaged in farming. One-hundred and five (105 or 27.8%) said that they went into trading activities, while 6 (1.6%) responded that they have been employed as civil/public servants. Those have found themselves in sand winning were 3 or 0.8%; and those who engaged in other menial jobs were 19 or 5.8%. Unfortunately, twenty-two (5.0%) were yet to find new jobs therefore stayed idles whiles 21 (5.6%) were engaged in illegal activities.

Table 18: Present economic activity of the respondents

	Number of Responses	**Percentage (%)**
Farming	61	16.1
Trading	105	27.8
Civil/Public servant	6	1.6
SSM	141	37.3
Sand wining	3	0.8
Menial jobs	19	5.8
None	22	5.0
Engagement in illegal activities	21	5.6
Total	378	100

Source: Field Data, 2019.

The findings support those of Bairwa, Lakra, Kumar and Kushwaha, (2014) who described the main livelihood strategies of idle rural mining households to include agriculture, self-employment in non-farm activities, such as weaving and carving, wage labour, trading and hawking, providing services in transport and other services.

The observation here is that, many people have engaged themselves but the majority are still engaging in the SSM. Those who are still involved in the SSM are probably those who went for the training offered them by the government. Those who were engaged in trading activities were those who went for the training but were not ready to engage in SSM again.

Livelihoods of displaced folks according to Ellis (2000); Fabusoro, Omotayo, Apantaku, and Okuneye, (2010); Khatun and Roy (2012) are spontaneous livelihood**,** that is a job taken up due to desperate situations which are determined by social, economic and ecological situations.

Respondents were asked if their current livelihood was different. Figure 11 shows that 203 (53.7%) had current work different from the previous whiles 173 (46.3%) said that they were still doing the same work.

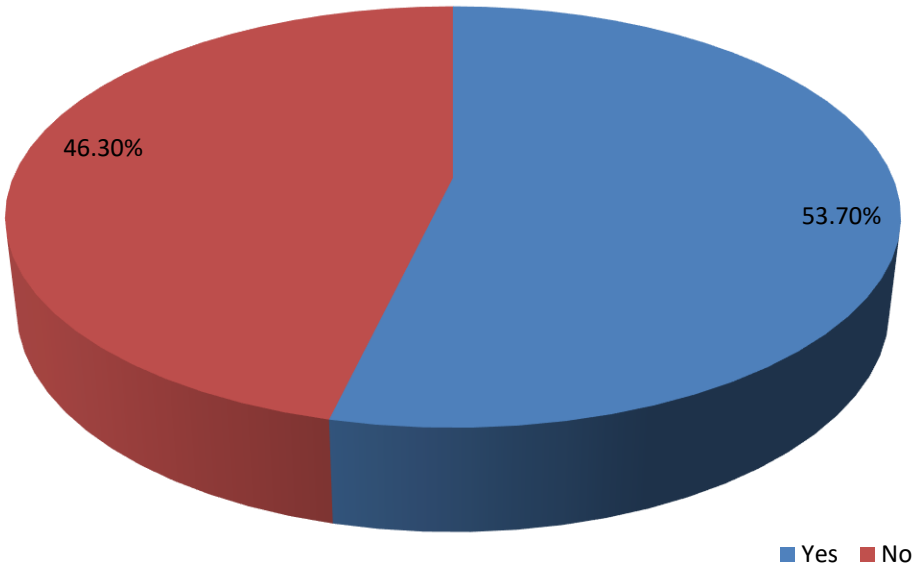


Figure 11: Whether the above stated economic activity or livelihood different from the SS miners were engaged before engaging SSM

Source: Field Data, 2019.

These findings support Priyanath's (1999) who says that the ban on SSM causes changes in occupational structure of some people, and block people's source of income.

From the observation in Figure 11, it can be concluded that if the new economic activity of the respondents differs from the previous job, then, those who went for the training or those who had formal education are benefitting..

During the focus group discussion, one discussant at Tebirebe expressed this view:

> *The ban was somehow good. The reason being that those who ignored their previous work because they were not getting the expected amount of income have gone back to do it. Which means that people can follow laws if only they are enforced by the appropriate authorities. The only challenged we were facing were the increase in armed robbery and child-delinquency. Our boys think that we are unable to provide some basic needs; hence they go out to abuse drugs and to steal, while our girls end up in prostitution which is really a problem to us (Female FGD, 2019).*

Figure 12 shows the monthly income of the respondents from their current livelihood. Two-hundred and eighty-six people (286) said that they earned less than GH¢1000. Other 72 said that they earned GH¢1000-3000, while 7 said that their current income wasGH¢4000- 6000. Six (6) respondents said that their current income per month was GH¢7000 and above. This is in line with that of Priyanath (1999) that effect of ban on mining has caused changes in people occupation, it has also reduced or blocked their source of

income. When the result is compared with when they were engaged in SSM, it can be concluded that many of them were earning more than GH¢10000 and after the engaging in different jobs, the people income level have changed, many people earning less than GH¢1000. This could have explained why some engage in crimes, their wards have become school -dropout or wayward or pressing the government to lift the ban.

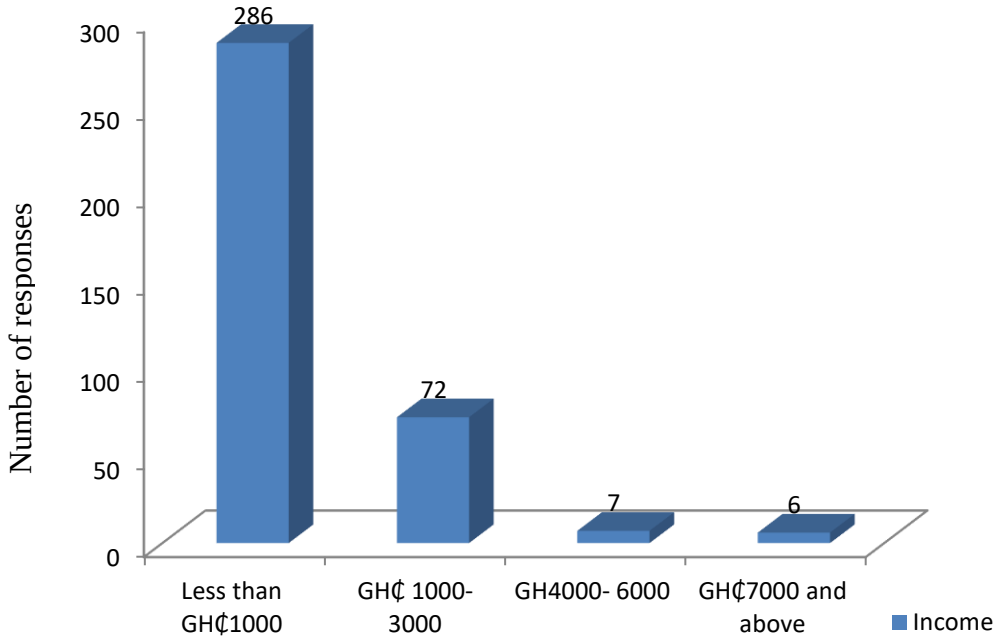


Figure 12: Present monthly income of the new economic activity

Source: Field Data, 2019.

A man at Aboso said this during a focus group discussion:

> *The amount of money that I used to earn has reduced drastically. Before the ban sometimes at the end of the weekend, I go home with GH₵1500 and if I add all the income at the end of the month, sometimes am able to get GH₵4500-60000. After the ban what I earned was nothing. Just compare GH₵100 with GH₵1500. In fact, the ban really affected most of us. Those who said they were*

rich lived in absolute poverty. The reason was that some of us refused to invest the money earned before the ban in other economic activities we were familiar with (Male FGD, 2019).

Unemployment leads to ill-health, and indebtedness which also lead to loss of assets, and impoverishment. These have devastating impacts on households (Barret and Beardmor, 2000). In relation to Figure 12, the researcher asked the respondents if they were satisfied with their new income. The majority (295 or 78.0%) of the respondents said that their income had gone down considerably because the SSM paid more than other jobs (Table 19). Seventy (18.5%) said that their income had been cut-down because the concessionaires were owing and hence, they were unable to pay their worker. Thirteen (13 or 3.5%) said their income had increased because their current job paid well.

Table 19: Reasons for differences in income levels (reduced, increased or cut-down) after the ban on SSM

Income status	Number of Responses	Percentage (%)
Income has reduced because SSM paid more than other jobs did	295	78.0
It has cut because the concessionaire was owing hence they were unable to pay well	70	18.5
It has increased because the new job paid well	13	3.5
Total	378	100

Source: Field Data, 2019.

One concessionaire at Tarkwa had this to say:

> *As I speak with you right now, if I should tell you the debt that I incurred due to the ban you will be shocked. I am hoping that I will be able to get money to defray all my debts; if not, I may commit suicide, or I will be arrested by my money-lenders especially the banks. Because of this problem, many people have run away from this community and some have hanged themselves. It was a serious problem! (Male FGD, 2019).*

Some authors have observed that when a ban is imposed on some activities there occur shocks; for example, some miners look around or migrate to other places to look for alternative jobs (Williams, 1976). Figure 13 shows the alternative sources of income of the SS miners. Majority (186) said that, they had no alternative sources of income. Those who had alternative source of income were as follows; 88 engaged in trading; 57 engaged in menial jobs while 35 went into farming. Twelve respondents were engaged in some illegal activities.

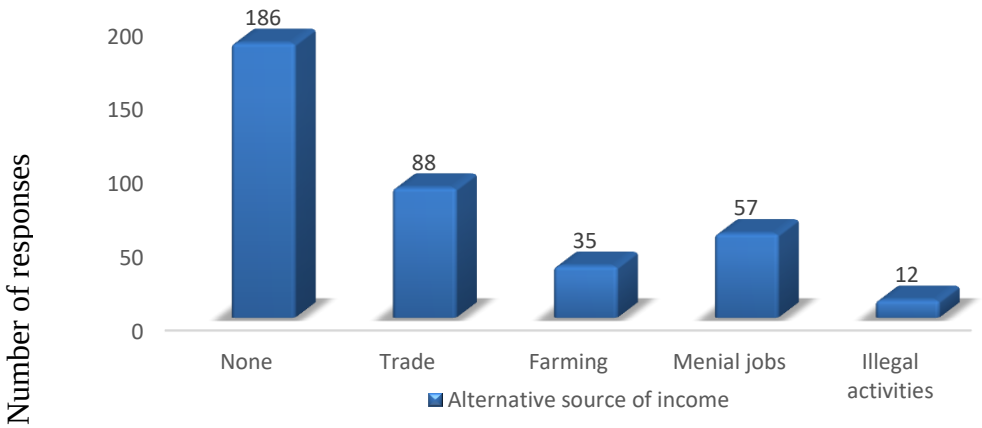


Figure 13: Alternative source(s) of income of the SS miners

Source: Field Data, 2019.

These findings are in line with that of Priyanath, (1999) who have suggested that, there is the need to educate people about the SSM and the importance of investing in alternate businesses that could support livelihoods when business collapses.

The implications here is that, even though some of the respondents indicated that they have other sources of income, majority still do not have alternative job if they were to loss what they are currently engaged in. If they should lose what they have, it might force their decision to commit crimes.

The views of the respondents on the ban itself were sought. Table 20 presents such views. Majority 96 (25.4%), said that, it brought hardship and poverty to many people, (88 or 23.3%) responded that it has created unemployment, 12.7% responded that it caused increase in crime rate. A further 30 (13.0%) responded that many were hurt, injured and imprisoned. Another 7.9% however responded that it prevented further pollution. Some 38 (10.1%) responded that, they were indifferent, while 24 (6.3%) responded that it helped to improve water quality and fish catch, with 5 (1.3%) say many people were in debt or had become very poor.

Table 20: People's view on the ban

People's view	Number of Responses	Percentage (%)
It has created unemployment	88	23.3
We are indifferent	38	10.1
Many were hurt, injured, imprisoned, committed suicide and some have been killed	49	13.0
It brought hardship and poverty to many people	96	25.4
It has increased crime rate	48	12.7
It prevented further pollution	30	7.9
It helped improve water quality and fish catch	24	6.3
Many people were owing and they had become very poor	5	1.3
Total	378	100

Source: Field Data, 2019.

The findings in Table 22 are in line with those of Chandrashekar (2018), that a ban on SSM affects the livelihoods of many people because it brings hardships and poverty to many people in communities. This also confirms what Chandrashekar (2018), said that over three million Ghanaians' livelihoods were affected between 2017 - 2018 because of the collapse of mining, banking and the industrial sectors. Amoako and Abew (2009), also support this with the view that many people in the mining areas began to live in poverty after the SSM was closed because the miners depended solely on the SSM and because all other economic activities that were associated with the mining operations were not grounded properly.

The major observation here is that, many complained bitterly because the ban has brought upon them hardships and poverty and this was due to unemployment that resulted.

An interviewee said this

> *'I took that opportunity to enroll and learn other skills from a technical institution. I am now repairing electrical gadgets as an alternative job. I can also say that, the ban was good at least it has helped some of us not to solely depend on the SSM as other affected miners have created their own jobs. The government should always anticipate the implications that may eminent from a ban on any socio-economic activity before implementing it' (Male IDI,2019).*

The Conceptual Framework (Fig.2) indicates that whenever people are faced with vulnerabilities, they develop strategies that produce either positive or negative impacts the environmental. The results contained in Table 20 show

that when there was 2017 ban on all forms of SSM activities, the majority of the workers developed strategies to cope with the effects of the ban. The coping strategies resulted increase or decrease well- being of miners. Consequently, some miners complain bitterly that their present income is not good while others say that are now better-off.

Baah-Boateng and Turkson (2013) have suggested that government should put in place plans to create unemployment interventions, whenever a ban is imposed on illegal economic activities. Matković, Mijatović, and Petrović, (2010) have consequently suggested that, agriculture in the rural communities should be carefully studied so that government could design adequate policies, strategies and measures to mitigate unemployment in the SSM communities and the in nation. Table 21 shows some recommendations that were suggested by the respondents. The majority (44.4%) suggested that, alternative jobs should have been created before placing the ban, while 117 (31.0%) suggested that, the government should legalize or lift the ban completely. Twenty-five (25 or 6.6%) said that the government should have reconsidered its decision before placing the ban. Fourteen (3.7%) respondents suggested that the government should have paid attention to the alluvial miners, while 28 (7.4) indicated that, there should have been collaboration between the government, SS miners and the LS mining groups/or government should have provided training for the SS miners before permit is issued.

Table 21: Some recommendations made

Recommendations	Number of Responses	Percentage (%)
Alternative jobs should have been created before placing the ban	168	44.4
The government should legalize or lift the ban completely	117	31.0
The government should have considered the benefits and cost from SSM	25	6.6
The government should have reconsidered his decision before placing the ban	26	6.9
The government should have paid attention to the alluvial miners	14	3.7
There should have been collaboration between the government, SS miner and the LS mining groups/ should have provided training for the SS miners before permit is issued	28	7.4
Total	378	100

Source: Field Data, 2019.

The findings are not in line with the African Economic Outlook (2012), which has suggested that governments should develop macroeconomic policies that promote job creation and broaden financing regulations as a form of support so that small companies can get loans and credit to grow their business and, as a result, employ more people. The Economic Outlook opine that developing national action plans that target youth employment and assign resources to them provide incentives for employers to hire first-time job seekers to train and increase retention. It encourages governments to support public partnerships that are designed to employ people by creating infrastructure projects that hire and train people in certain skills. Again, such a move has additional benefits of

fostering conditions for the growth of businesses that create more jobs for laid-off workers.

Observation revealed that, if the government should have created other jobs that pay as well as the SSM, this could have even change the affected miners mind on SSM or they would not have even pressurised the government to lift the ban for them.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter summarizes the major findings of the study. Conclusions are drawn based on the findings, and some recommendations are made to draw the attention of the authorities' on the implications of the 2017 ban on the SSM in particular and on any other public activities.

Summary

Small- scale mining is a business carried out in almost all mining communities in the world. It is an activity that is carried out without any proper regulations; hence it is associated with social problems and environmental degradation. Because of the associated social and environmental problems, government from different parts of the world often place temporal bans on the activities. In 2017, as a result of public out- cry to the government to protect the country's forest, rivers, and farmlands, the government of Ghana placed a temporal ban on all small-scale mining activities in the country which from the information available had serious socio-economic implications. The main objective of the present study was therefore to investigate the implications of the 2017 shut-down on the livelihood of the displaced small-scale miners before, during, and after the ban was lifted. Specifically, the study sought to:

- Investigate the factors that attract fortune seekers to flock into the Tarkwa Nsuaem Municipality to engage themselves in the small-scale mining;
- Identify the previous assets of those who were displaced by the 2017 ban;

- Explore the opportunities derived from those assets that the displaced miners acquired while they were working as small-scale miners;
- Assess the effects of the ban on the displaced miners' assets and livelihood and
- Assess the livelihood strategies adopted by those displaced miners when they were out of employment.

The study employed mixed- method research design approach to collect and analyse the quantitative and qualitative data. Structured questionnaires, in-depth interviews and focus groups discussions were used to collect primary data, while journals, newspapers, books and the electronic media served as the sources of secondary data. A sample size of respondents were selected from five concessions in five settlement using both the probability and the non-probability sampling techniques. The quantitative data was analysed using the Statistical Package for Service Solution (SPSS) version 22. Result were then presented in tables, frequencies, diagrams, and regression analysis.

Major findings

The following were the major findings:

- Small-scale mining is an economic activity practiced by the unemployed in the mining communities everywhere in the world. It is a formal or informal operation that exploits marginal or small deposits. It however lacks capital, but is labor intensive. It uses simple equipment such as shovels, and occasionally bulldozers and excavators to dig to reach the mineral ore. The miners usually are men and women who work on individual basis or in family groups, in partnerships, and as members of

cooperatives. They are required to follow the policies on effective mining and regulations.

- Small-scale mining provides a source of livelihood especially to people in the rural areas where barriers to that job is absent. The operation requires relatively small capital and little or no education or technological investment.
- The operation is useful because it provides basic skill training, or contributes to the transformation of the unskilled into semi-skilled and skilled workers. It also creates market opportunities for local farmer and petty-traders.
- The motives of the miners who are mainly poor and ignorant youth, is to "get rich quick". Some of the miners operate without permits and thus avoid paying tax to government.
- In Ghana, lack of white-colored jobs and the national poverty situation has led to the rapid growth in the number of the small-mining operations. This is because the business provides jobs and good money to support family needs.
- While the operation has improved the quality of life and has given impetus to economic development amongst the rural folks, it has also brought in its wake, notable negative impacts on the environment as well as on the socio-economic conditions of the local people. For example, the destruction of the forest and farmlands is due to the epidemic illegal mining that has destroyed the living conditions of the local people; and has contributed to the high rate of drop-outs from schools, increased teenage pregnancy, disrespects for the elderly, and to the undesirable

behaviors such as the smoking of hard herbs. The public-spirited individuals cried to the government, to at least, place a temporal ban on the small-scale mining in 2017, which the government did!

- As elsewhere in the world, the 2017 ban in Ghana had both positive and negative implications when it was in operation. For example, residents reported the quality of streams improved, dead rivers begun to flow and wet lands reappeared while fish-catch in streams improved.
- Despite the gains, the ban in Ghana caused negative damages in the occupational structure of the miners. The displaced miners had to move to other areas of the country to search for jobs that were not available. Other returned to their formal occupations such as farming and petty-trading. Those who did not have any previous occupation and had no qualifications, ended up in armed- robbery businesses. Most importantly, the unemployment led to ill-health, indebtedness, and loss of assets.
- When the ban was lifted and the workers returned to their mining activities, their social and economic status improved tremendously. The majority are now suggesting that government should put in place unemployment interventions whenever there is a ban on any social or economic activity in the country. Above all, the respondents opine that there should be proper investigation into the possible implications of a ban before it is imposed. Such a move may help to prevent public disorders and hardship in the future.

Conclusions

The findings of the present study show the respondents' awareness of the implications of the government's ban on socio-economic activities, and on the livelihoods of the displaced people. The following conclusions are consequently made.

One major issue investigated was the factor that attracted people to engage in SSM. From the findings of this study and what the literature says, the researcher can conclude that unemployment, quick access to income, necessity of life, and the promising nature of the job are some of the factors that attract people to engage in the SSM activities.

With regard to the assets of small-scale miners before engaging in the small-scale mining activity, the respondents said that some of them were engaged in other economic activities before the SSM, and that the assets they depended on for their livelihood included shops, farms, cottage industry, SSM/LSM, and fishing. The researcher can conclude that the SS miners need to be educated or trained in other economic activities that can build their capacity so that if the SSM fails or collapses, they could be independent and rely on other jobs or skills acquired for survival.

On the issue of the opportunities derived from SSM before the ban, the majority responded that, they were earning good money. Priyanath (1999), has consequently suggested that, there is the need to educate people about the SSM and the importance of investing in alternate businesses or avenues that can equally support livelihoods when mining activity collapses. According to Schmid, Speckesser and Hilbert (2001), training and education are the most

effective endowment for unemployed so that they could gain other basic skills to work with whenever there are changes in their economic activities.

There is therefore the need for government to put in place measures that ensure the creation of unemployment interventions policies whenever a ban is imposed on any economic activities (Baah-Boateng, 2013).

Finally, from the findings of the study, and the literature, the present researcher concludes that there is the need for people (SS miners) to get themselves educated, and look for alternative sources of income.

Recommendations

The following recommendations are being made based on the result of this study:

1. Thus, to sustain the livelihoods of the small-scale miners, the financial and technical capability should be strengthened. Government agencies should organise all the unregistered small-scale miners (galamsey workers) to work under strict and controlled environmental regulations or link them to the large-scale mining groups to offer them permanent employment. Government agencies such as the Minerals Commission, Environmental Protection Agency (EPA) and Water Resources Commission, should also develop policies that promote job opportunities and also provide financial support to those small-scale miners who do not want to continue the small-scale mining activities through loans and credits to start their own business. Furthermore, government should organise courses on self-help in the mining communities when all these are done displaced miners will be able to find alternative job whenever there is a shut-down.

2. Government institutions such as Minerals Commission, Environmental Protection Agency (EPA), Forest Commission and Water Resources Commission, and with the help from Non-Governmental Organisations (NGOs) like Friends of the Nation, should facilitate the transfer of new ideas and the experiences that will bring sustainable development in the mining areas.
3. Financial institutions such as the banks, savings, loans and microfinance institutions should endeavour to educate displaced miners on the importance of investment and savings.
4. Government should put in place social protection programs to alleviate the suffering of the displaced miners. Government can revive agriculture and other sectors of the economy that can become attractive business that can equally pay as the SSM does.
5. To attract full participation in the discussion of the environmental degradations, and remedies, members of the SS miners should be periodically lectured on the development and management of the environment by appropriate institutions, through workshops, seminars, and during social gatherings.

Contribution to Knowledge

The first significance contribution to of this study is on the importance of, the ban on exploitation, the implications on the ban on the livelihood of the displaced people and what the authorities may do to alleviate the suffering of the affected people.

To protect the environment and to ensure sustainable employment for miners, the institutions responsible for mining should follow the policy of

egalitarian society, which says that a society is built on the ideological precepts of the utilitarian who believes that something morally right if it helps the majority to obtain maximum satisfaction (Kumar, 2009 in Okoree, 2018). That is to say, that if government or employers can give SS miners the necessary skills and support, he or she will always find an alternative job to fall on whenever there is sudden shut-down.

Finally, the study should serve as an "eye-opener" to people in the mining authority that because they have the power to do what they want, they should not take on popular decisions that will precipitate poverty, criminal activities and social disorder.

Suggestion for Further Studies

The scope of the present thesis was limited to only the SSM communities in the Tarkwa Nsuaem Municipality. A research of this kind that describes the effects of government shut-down on social and economic wellbeing of people should cover all the mineral producing areas in the country. As such, it is suggested that, for future studies the following should be done.

1. Studies should be done in all the mining areas of the country so that results from such studies could be generalized.
2. Further research is needed to investigate the perception of miners on the development and management of natural resources.
3. Finally, there should be studies on consolidated implementation plans that could ensure that the required information on job opportunities, skills, environmental degradations, remedies and livelihoods that are readily available for easy access.

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST

FACULTY OF HUMANITIES AND LEGAL STUDIES

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANINING

This questionnaire is strictly for academic purpose. Your responses would therefore be highly confidential and the outcome will enable the researcher to make preliminary evaluation on your views and on the implications of the ban on small-scale mining on livelihoods: a case of Tarkwa Nsuaem Municipality. The researcher hope that you will sincerely and freely respond to the items listed below. Tick (√) that best express your choice.

Graduate thesis work. This questionnaire is designed to elicit information regarding this research work. There are no correct or wrong answers. Information given will solely be used for this research. You are also assured of full confidentiality, privacy and anonymity of any information that you provide. You are kindly requested to answer the questions as frankly and openly as you can. Thanks for your cooperation.

Section A: Socio-demographic characteristics of respondents.

1. Sex: (a) Male (b) Female
2. Level of education: (a) No formal education [] b) Formal education []
3. Your origin: (a) From the community [] (b) Migrant []
4. Income level per month: (a) less than GH¢1000 [] (b) GH¢1000-3000 [] (c) GH¢4000- 6000 [] (d) GH¢7000 and above [].

Section B: Factors that attracted people to engage the SSM.

5. Which of these drivers influenced you to engage in SSM in your community? (a) Unemployment [] (b). School dropout [] (c) Pressure from friends [] (d) Not happy with previous work [] (d) others []
6. Which of the additional reasons influence people to engage in SSM in your community? (a) SSM is economically more rewarding than other activities [] (b) SSM provides quick access to income [] (c) SSM does not require any specialized skills to engage in [] (d) Unemployment/Underemployment compel people to engage in SSM [] (e) Others, specify……
7. Did you have a permit or license before engaging in SSM? (a) Yes [] (b) No [] If yes, from whom and do you conform to its policy? Please mention……...
8. Did you have any skills before engaging in SSM? (a) Yes [] (b) No [] if so, please explain……

Section C: Assets or livelihood of SS miners before engaging in the SSM activity.

9. Which of the following assets or livelihood did you depend on for your livelihood before engaging in SSM? (a) Trade [] (b) Farms [] (c) Industries [] (d) Vehicles [] (e) Others, specify…….
10. Were you the owner of the assets or the livelihood mentioned above? (a) Yes [] (b) No [].

Section D: Opportunities derived from the assets acquired.

11. Indicate the asset received from the SSM while engaged in the SSM: (a) Cash [] (b) Buildings [] (c) Land [] (d) Others, specify…….
12. How much income did you earn from SSM before the ban? (a) Less than GH¢1000 [] (b) GH¢1000-3000 [] (c) GH¢4000- GH¢6000 [] (d) GH¢7000 and above []
13. How would you describe the income earned in the above? (a)Very good [] (b) Very bad [] (c) Normal [] (d) others, specify…….
14. In what way did the SSM improve your personality? (a) Catered for your family [] (b) prevented you from crimes [] (c) Solved psychological problems [] (d) Others specify…….

Section E: Effects of the ban on the livelihood of the SSM miners.

15. Did the ban on SSM have any socio-economic effects on people's livelihood in your community? (a)Yes [] (b) No []
16. If yes in what ways did it affect your livelihood and your family? Please explain.....
17. In what way has the ban affected your lifestyle? (a) Psychological problems [] (b) financial pressures [] (c) Engagement in illegal activities (prostitution, thuggery, drug and substance abuse) [] (d) others, specify…….
18. What kind of support did the Government provide for you, when you were affected due to the ban? .....

19. Has the support caused any changes to your living condition? (a) Yes [] (b) No [].
20. Has the ban caused people to migrate to other places? Please explain ……...
21. What is your view on the effects of SSM on the environment? .....
22. In what way has the SSM affected the environment and the health of people? Please explain…….
23. Please explain how the ban can affect environmental quality and the health of people……

Section F: Livelihood strategies adopted after the ban.

24. What strategies have you adopted to cope with the ban on SSM? …….
25. Presently, what is your main economic activity? (a) Farming [] (b) Trading [] (c) Civil/Public servant [] (d) Others, specify…….
26. Is the above stated economic activity different from the one you were engaged before entering into SSM? (a)Yes [] (b) No []
27. If yes how much incomes do you earn from your present economic activity monthly? (a) Less than GH₵1000 [] (b) GH₵ 1000-3000 [] (c) GH4000- 6000 [] (d) GH₵7000 and above []
28. From Q.27, has the ban on SSM cut-off, increased or reduced your income level? Please explain….....
29. What alternative source(s) of income do you have now? .....

30. In your own view do you think the ban by Government was good? Please explain……

31. What recommendations can you make? ……..

APPENDIX B

UNIVERSITY OF CAPE COAST

FACULTY OF HUMANITIES AND LEGAL STUDIES

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANINING

This in-depth interview is strictly for academic purpose. Your responses would therefore be highly confidential and the outcome will enable the researcher to make preliminary evaluation on your views and on the implications of the ban on small-scale mining on livelihoods: a case of Tarkwa Nsuaem Municipality. The researcher hope that you will sincerely and freely respond to the items listed below.

This in-depth interview is designed to elicit information regarding this research work. There are no correct or wrong answers. Information given will solely be used for this research. You are also assured of full confidentiality, privacy and anonymity of any information that you provide. You are kindly requested to answer the questions as frankly and openly as you can. Thanks for your cooperation.

Section A: Factors that attracted concessionaires to engage the SSM.

1. What perception did you have about SSM?
2. What drivers influenced your decision to participate in SSM?
3. Were you employed or unemployed before engaging in the SSM?
4. Did you have permit or license before engaging the SSM?
5. Have you been adhering to all the policies on the regularisation and the environment?

Section B: Assets or livelihood of concessionaires before engaging in the SSM activity.

6. What assets or livelihood did you depend on for your livelihood before engaging SSM?
7. Were you the owner of the assets or the livelihood mentioned above?

Section C: Opportunities derived from the assets acquired

8. Indicate the asset gained within the SSM period.
9. How much income did you earn from SSM before the ban?
10. In what way did the SSM improve your personality?

Section D: Effects of the ban on the livelihood of the concessionaires.

11. Did the ban on SSM have any effects on your livelihood?
12. In what ways did the ban affect your lifestyle?
13. Did the Government provide any support when the ban was placed?
14. Do you know other concessionaires or workers who have migrated due to the ban?
15. What are their reasons for migration?
16. Do you think the ban can affect the environmental quality and the health of the people?

Section E: Livelihood strategies adopted after the ban.

17. What strategies did you adopt to cope with the ban on SSM?
18. Are the above stated strategies different from the one you were engaged before engaging in SSM?

19. How much incomes do you earn from your present economic activity monthly?
20. Did the ban on SSM cut-off, increased or reduced your income level?
21. What alternative source(s) of income do you have now?
22. In your own view do you think the ban by Government was good?
23. What recommendations can you make?

APPENDIX C

UNIVERSITY OF CAPE COAST

FACULTY OF HUMANITIES AND LEGAL STUDIES

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANINING

This focus group discussion is strictly for academic purpose. Your responses would therefore be highly confidential and the outcome will enable the researcher to make preliminary evaluation on your views and on the implications of the ban on small-scale mining on livelihoods: a case of Tarkwa Nsuaem Municipality. The researcher hope that you will sincerely and freely respond to the items listed below.

This in-depth interview is designed to elicit information regarding this research work. There are no correct or wrong answers. Information given will solely be used for this research. You are also assured of full confidentiality, privacy and anonymity of any information that you provide. You are kindly requested to answer the questions as frankly and openly as you can. Thanks for your cooperation.

Section A: Factors that attracted the unregistered groups to engage the SSM.

1. What perception did you have about SSM?
2. What drivers influenced your decision to participate in SSM?
3. Were you employed or unemployed before engaging in the SSM?
4. Were you aware of policies on the regularisation and the environment?

Section B: Assets or livelihood of the groups before engaging in the SSM activity.

5. What assets or livelihood did you depend on for your livelihood before engaging SSM?
6. Were you the owner of the assets or the livelihood mentioned above?

Section C: Opportunities derived from then assets acquired.

7. Indicate the asset gained within the SSM period.
8. How much income did you earn from SSM before the ban?
9. In what way did the SSM improve your personality?

Section D: Effects of the ban on the livelihood of the groups.

10. Did the ban on SSM have any effects on your livelihood?
11. In what ways did the ban affect your lifestyle?
12. Did the Government provide any support when the ban was placed?
13. Do you know other concessionaires or workers who have migrated due to the ban?
14. What are their reasons for migration?
15. Do you think the ban can affect the environmental quality and the health of the people?

Section E: Livelihood strategies adopted after the ban.

16. What strategies did you adopt to cope with the ban on SSM?
17. Are the above stated strategies different from the one you were engaged before engaging in SSM?
18. How much incomes do you earn from your present economic activity monthly?

19. Did the ban on SSM cut-off, increased or reduced your income level?

20. What alternative source(s) of income do you have now?

21. In your own view do you think the ban by Government was good?

22. What recommendations can you make?