ASSESSING THE EFFECTS OF MINING ON THE EDUCATIONAL LIFE OF CHILDREN IN THE ASUTIFI DISTRICT IN THE BRONG AHAFO REGION OF GHANA.

BY

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DECLARATION

I hereby declare that this submission is the result of my own work towards the M.Sc Development Policy and Planning Programme, and that to the best of my knowledge this study contains no materials previously submitted for the award of any other degree of the university, except those duly acknowledged and cited in the text. Any opinion or views expressed and errors found in the work, however, entirely are my responsibility and do not necessarily represent the organizations or individuals who have been cited in this work.

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ABSTRACT

Many children in Africa especially in West and Central Africa are estimated to work full- or part-time, paid or unpaid in mining work. Many of the children are involved in hazardous, harmful and strenuous activities, such as digging underground pits, carrying sand from mine pits, and washing of sand, crushing and grinding of mineral-bearing rocks in mines. Even if the work itself is not hazardous, many working children are denied access to education, or drop out of school due to the remoteness and time-consuming nature of their work and perhaps as an opportunity cost to parents for keeping children in school. However, the time of some children is divided between work and school to help them earn income which may enable them to continue their schooling. Others work to assume a very profound economic role in their families and many other children also work to earn income to buy basic necessities they need. In some contexts, children derive a sense of meaning and responsibility from their work and the contributions they make to the family. Whatever the push and pull factors may be, the educational attainment and development of children in terms of enrolment, performance and retention are always affected.

Education is seen as a master key which opens doors into development. It is also the means and an end in itself in the journey to development. Where the access to and quality of education are compromised, some children may prefer work to school and to take them away from work without replacing the meaning and status they needed can result in worse outcomes.

Literature indicates that there is a continuous and persistent relation between child labour and children's education especially in mining communities which threatens to destroy the human capital formation of the nation at large. This phenomenon and its alarming increase necessitated this research to conduct an in-depth study into the effect of mining on the education of children in the catchment communities in the Asutifi District of the Brong Ahafo Region of Ghana. The case study method was used in the study since it is very important to researches with perspectives on contemporary developmental issues like child labour. The sample frame was the list of all the household heads, all working children, all teachers, local government officers and education officers in the selected communities from which a sample size of 156 was determined through the use of the mathematical formula given by Miller and Brewer (2003). The systematic, purposive, snowball and simple random sampling methods were used to sample the respondents for

interviews. The study relied on data gathered from the secondary sources and primary data from the field to do the analysis.

The result of the study showed that, the major factor which has pushed or pulled many school-going children in the study area into mining is poverty. Other factors are peer influence, children's desire to quickly gain economic freedom, poor performance or poor educational results of children and inadequate educational infrastructure and logistics. Although enrolment has increased over the years since mining became operational in the study area, school retention (dropout has increased) has decreased and performance has also gone down in the face of vigorous mining activities in the area. The formal mining company; Newmont Ghana Gold Limited together with the teachers and the other stakeholders have helped in many ways to restrict and restore working children into the classroom. This is done through the building of new infrastructure, granting of scholarships, proving micro enterprises for parents and school leavers.

The study made a number of recommendations such as; improving the local economy, increasing access, quality and relevance of education, motivating and remunerating teachers to give their best, integrating vocational education to the mainstream education system, provision of functional education to parents to sensitize them on the dangers involved in allowing their children to go into mining, enforcement of laws on child labour and punishment for offenders, promoting and ensuring all-inclusive responsibilities in tackling the problem.

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LIST OF ABBREVIATIONS

ASM	Artisanal and Small-scale Mining
BECE	Basic Education Certificate Examination
CG	Capitation Grant
CLM	Child Labour Monitoring system
EFA	Education For All
FDI	Foreign Direct Investment
FFE	Food For Education
GER	Gross Enrolment Ratio
GES	Ghana Education Service
IHRC	International Human Right Clinic
ILO	International Labour Organization
IPEC	International Programme on the Elimination of Child Labour
MESW	Ministry of Employment and Social Welfare
MLHSSS	Ministry of Labour, Human Services and Social Security
NGGL	Newmont Ghana Gold Limited
NGOs	Non - Governmental Organizations
SCREAM	Supporting Children's Rights through Education, the Arts and the Media
SFP	School Feeding Programme
TAMICO	Tanzanian Mining and Construction
TFTU	Tanzania Federation of Free Trade Unions
UNICEF	United Nation Children Fund
USDOL	United States Department of Labour
WCED	World Commission on Environmental and Development

CHAPTER ONE
INTRODUCTION

Ghana as many other countries in sub-Saharan Africa wields an outstanding history of mineral endowment. Due to these large mineral deposits, mining in Ghana has become a significant economic activity going back to many years. Apart from gold, diamonds, bauxite, iron, limestone, salt, and various other industrial mineral were also exploited. There is also a growing potential for commercial gas and oil exploitation, with announcements of significant discoveries of off-shore oil in June 2007, and exploitation started in 2010. Gold, however, is by far the most dominant mineral currently being exploited. Gold accounts for, on the average, 90% of total value of minerals won (Akabzaa, 2007).

During the colonial period the governors were in favour of large-scale companies based in Britain and tended to discourage small-scale enterprising individuals. In areas such as Obuasi, Konongo, Bibiani, Ayamfuri and Iduapriem, gold mining operations had been going on for many years with Obuasi becoming the country's chief source of gold (Ayensu, 1997). Alongside the foreign gold mining companies, there are several Ghanaian players. First, there are several small-scale miners who, in collaboration with and with assistance from foreign companies are trying to develop their claims into mechanized mines.

Modern day Ghana has succeeded in transforming its mineral wealth into economic development. From the beginning of economic policy changes of 1983 to date, the mining sector in Ghana has shown significant boost in production and investment, especially in the gold market. A considerable growth has also been observed in the number of explorations as well as mining companies. The industry has also attracted substantial number of support-oriented businesses such as explosive manufacturers, transport companies, financial companies, security companies and mineral laboratories. The mining sector has also augmented its share of foreign exchange earnings and attracted significant Foreign Direct Investment (FDI) inflows in Africa over the last few years.

Mineral commodities give countries possessing them an advantage in their developmental efforts. The sector's resources and growth can be harnessed as inputs for holistic sustainable development.

With a reasonably well-known and attractive mineral resource base, significant mining investment has been attracted into the country over some 20 years of stable multi-party democracy. The mining sector has therefore been an important part of our economy, with gold accounting for over 90% of the sector. Ghana is the second largest gold producer in Africa and the 9th largest producer in the world. The sector directly contributed 38.3% of Ghana's total corporate tax earnings, 27.6% of government revenue and 6% GDP in 2011. The sector also employs 28,000 people in the large scale mining industry whilst over 1,000,000 people are engaged in the small scale gold, diamonds, sand winning and quarry industries. In 2011, Ghana produced 3.6 million ounces of gold, the highest ever in the history of the country. This resulted in export revenues of over US$5billion. It is significant to note that small scale miners contributed some 28% of the total gold production in 2011. Total Direct Investment (TDI) into the minerals and mining sector from 1983 to 2011 amounted to US$ 11.5billion (Aryee, 2012).

In spite of the economic strides made by mining in Ghana and in spite of the prioritized economic considerations given by governments coupled with the corporate social and environmental responsibilities performed by the mining industry, mining still has a direct or indirect adverse effects on the lives of children, more especially on their education by pulling them out of the classroom into the labour market.

According to Thorsen (2012), a third of all children in West and Central Africa are estimated to work full- or part-time, paid or unpaid. Many of these children are involved in hazardous and harmful activities in mines. Even if the work itself is not hazardous, many working children do not have access to education or drop out of school due to the opportunity costs for parents of keeping children in school and out of work. However, some children do combine work and school and earning an income may enable them to continue their schooling. Nevertheless the hard physical work and long working hours in mining sites is one reason among many why children may have difficulties in keeping up with school work.

A survey conducted by the Talensi-Nabdam District Assembly of Ghana in 2007 revealed that as many as 658 children who were supposed to be in the classroom or learning various trades were working in the mines. The mines employ the services of children to separate gold dust from pounded rocks extracted from the mines. Instead of finding their way to the classrooms, these children make their way to the mines and no

wonder the district has witnessed a decline in the performance at the Basic Education Certificate Examination (BECE) level (Glover, 2010).

This presents a situation that is a gross departure from Sustainable development as defined by the World Commission on Environmental and Development (WCED) as ''Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs'' (WCED, 1987).

The fact remains doubtless that, a fair amount of investment has gone into the promotion of basic education in the country. Yet, there are doubts as to whether these initiatives are necessarily having the desired impact. Example, seeing the low level of enrolment in schools especially in mining communities, the Government of Ghana has implemented and will continue to implement a number of programmes in collaboration with stakeholders, which intend to directly remove all children from the labour market. Prominent among these is the full implementation of the Free Compulsory Universal Basic Education (FCUBE) policy. This policy aims to use free attendance at public basic schools to disengage children from child labour and get them into schools. (de Lange, 2007; Okyere, 2012). The Capitation Grant (CG) was also 'designed to relieve parents of the burden of paying tuition fees in public schools Little (2010). The School Feeding Programme (SFP) which equally aims (in part) to boost enrolment and retention in basic schools was also introduced. Other programmes like Free Transportation for school children in the Metro Mass Transit Busses, Free school uniforms and other learning materials were given free to children, all with the aim of promoting children's education which also serve as an expressway for removing children from mining-led child labour.

Over the years, international children's rights policy makers have also instituted a plethora of education related campaigns aimed at getting children out of the labour market. For instance the ILO World Day against Child Labour in 2008 was under the theme: ''Education: The Right Response to Child Labour''. The event sought to underscore the adverse impact of child labour on children's education and on their development in general (ILO 2008); a view which others have also noted (Heady, 2003; Guarcello et al, 2008; Okyere, 2012). All these educational policies and programmes are good in their places but as to whether they have brought significant educational changes in mining communities of Ghana remains an unanswered question. This research

therefore seeks to find the state of education in the face of vigorous mining activities in the Asutifi District.

1.1 Problem Statement

Many developing countries in sub-Saharan Africa with abundant resources are confronted with the issue of ‘’resource curse’’. This explains how mining companies, government and other stakeholders siphon all the wealth from resourced communities but fail to perform part of the corporate social and environmental responsibilities to the core.

Asutifi District in the Brong Ahafo Region of Ghana is one of such districts that is experiencing the repercussions of a somewhat negative influence of mining on children’s performance, enrolment and retention in schools. The district capital, Kenyasi No 1 and No 2 and their adjoining towns are raising great public outcries on the seriously mining-led problems which threaten to destroy the human capital of the communities in the near future.

Example of such outcries is the one that was manifested under a children’s education forum on the effects of small-scale illegal mining on education at Kenyasi, in the Brong –Ahafo Region. Mr. Darko Mensah, acting Director of the Inspectorate at the Ghana Education Service (GES) declared that, in a research which was conducted in one of the schools in 2008, seven out of fourteen students, who sat for the Basic Education Certificate Examination (BECE), passed and gained admission into Senior Schools but in 2011 out of 44 students who sat for the examination only five passed. The research also revealed that students who registered to write the 2012 examination refused to write the Mock exams and also exempted themselves from school to engage in “galamsey’’ activities (Mensah, 2012).

The most outstanding among these mining-led problems that attract great concerns in the area are the increase in school drop-out and the poor performance of children in schools, alcoholism and teen-age pregnancy among school children. Most of the children involved come from poor homes. They initially start mining as part – time to help them pay and purchase petty things for school but many of them end up abandoning school altogether, as the attraction of making money is seemingly better for them than the perception of long-term schooling.

In another forum organized by Action Aid, on June 3, 2009 at Kenyasi, the District Director of Education said, some 200 school children absent themselves from school daily to do all kinds of works in illegal mining (galamsey) site in the Asutifi district. As a result of this alarming and seemingly uncontrollable trend, about 14 girls became truants and 21 girls were impregnated who later became school drop outs in the previous 2007/2008 academic year (Ammanor, 2009).

Both formal and illegal mining have directly or indirectly induced school children to engage in all forms of commercial and economic activities such as food vending, sale of hard drugs, sale of ice water, hawking, sale of alcoholic beverages and kerosene. School children are also hired as errand boys or 'ghetto boys' by 'ghetto owners' (people who engage in the sale of prohibited drugs). Some of the children are introduced to the smoking of Indian hemp, while others are given 'Laka' (mixture of Cocaine and Apketeshie). This has greatly resulted in fallen standards of education in the area.

Such nagging problems enumerated above have necessitated the need to research into the effects of mining activities; both large scale and small scale on children's education in the Asutifi district in the Brong Ahafo Region, in order to examine its consequential Policy implications.

1.2. Research Questions

The research seeks to answer the following questions;

1. How have mining activities affected enrolment in basic schools in the Asutifi district?
2. What is the pattern of pupil's level of performance in the BECE since mining became operational in the area?
3. What are the corporate social responsibility packages of mining companies to education in the Asutifi District?
4. How have mining activities contributed to school dropouts among pupils at basic schools?

1.3. Objective of the Study

In general terms, the study aims at determining the negative effects of mining on children's education at the basic schools since mining became operational in the study area. In specific terms, the study seeks to;

1. Determine the trend of enrolment in schools since mining became operational.
2. Determine the performance of pupils in the BECE from the time mining became operational to date.
3. Analyze the trend of dropout in the study area.
4. To identify the corporate social responsibility packages of mining companies to education in the Asutifi district.
5. To make suggestions and recommendations that could inform policy formulation

1.4. Justification of the Study

The attraction of children into mining sites can draw children out of schools and may jeopardize the human resource capacity of the study area in the near or distant future. This study will help to uncover the real causes and pattern of the fallen standards of education in the face of vigorous mining activities. The study will add more information to existing ones on the measures to be taken to remove or reduce the movement of children into the mining sites. It will also help to check whether efforts to provide educational support have proved sufficient in discouraging children from engaging in arduous mining activities.

1.5. Scope of the Study

Within the context of the study, the focus is on the expansion or the increase of mining activities (both formal and informal) and their effects on the immediate communities, especially on the lives of school-going children and their educational prospects both in the near and distant future. The content of the study also covers the totality of children's education in the face of vigorous mining activities.

Geographically, the study would cover Asutifi District in the Brong Ahafo Region of Ghana.

In terms of the time frame, the time period under consideration in the study is 2005-2012.

CHAPTER TWO
MINING AND CHILDREN'S EDUCATION

2.0 Introduction

This chapter delves into a wide range of relevant literature that relate to the subject matter of the study. Based on a review of a broad range of literature - spanning from newspaper articles, to reports of commissioned research, to Master and Doctoral theses, to peer reviewed academic publications - this research aims to unpack the circumstances in which children work in mining sites. It draws on the increasing body of child-centered research that allows us to begin exploring the different types of work that boys and girls, younger and older children do in mines, the effects of mining activities on their educational life and, most importantly, on their aspirations for the future. This allows the presentation of a nuanced perspective on general prospects of education looking at the patterns of enrolment, performance or dropouts in the face of vigorous mining activities. It looks at children's dreams, strategies and tactics, whether they have begun working in mining on their own initiative or have been put to work by their parents or guardians. This chapter has thoroughly delved into the following areas:

I. Definition of mining concepts
II. Age and gender of working children
III. Push and pull factors that drift children into mining sites
IV. Work arrangement, environment and work conditions of working children
V. Effects of mining on school enrolment, retention(or drop out) and performance
VI. Projects and programmes mitigating the drift of school-going children into mining

2.1 Definitions of mining concepts

2.1.1 Large - scale and Small - scale mining Industries

According to Brayan (2008) mining is generally of two categories that is, large scale mining and small scale mining. Large scale mining is usually undertaken by big companies using many employees and a huge labour force. The large scale company mines at large sites and continues the operations until the mineral is completely exhausted. Small scale mining on the other hand is done by relatively small groups of wandering men. They travel together and identify sites they think will yield gold or any

other valuable mineral. Some researchers believe that small scale mining is more harmful to the environment and causes more social problems than large scale mining.

Large scale mining companies are often predominantly owned by foreigners. They are highly mechanized and employ highly skilled labour either permanently or on contractual basis. Large scale mining companies readily conform to the legal framework guiding mining in every country. Large scale mining companies wield characteristics which help them to fulfill conditions such as; the possession of a mining title (concession, claim etc.) or a valid contract with a concession holder, compliance with the environmental legislation, possession of an environmental operation license, registration of the company at mining authorities, payment of taxes (royalties, company taxes etc.), enrolment of the staff at the national social security system as well as legal exportation of the products (export license, export tax etc.). These features make large scale mining activities very formal, legal and easy to control.

In Small scale mining on the other hand, governments do not have the means to control their compliance of the laws or at times do not even give recognition to their activities; hence many operations remain informal and illegal. This is supported by an International Labour Organization (ILO) definition that, the informal sector is mostly composed of self-sustaining production units and activities with low income, productivity and skills. These have low levels of technology and little organization. The informal sector's link with other economic sectors is weak. (ILO, 2000). Based on this definition, Navch, et al (2006) agrees that, participation in the informal sector is a result of forced necessity rather than of choice. This holds true for people engaged in informal gold mining.

Despite many attempts, a common definition of artisanal and small-scale mining (ASM) is yet to be established. Hentschel et al (2002) broadly defined ASM as mining by individuals, groups, families or cooperatives with minimal or no mechanisation, often in the informal (illegal) sector of the mining industry. Based on the method of extraction, the equipments used and the type of labour employed, Thorson (2012) has this to say, "artisanal and small-scale mines operate within the informal economy and on the borderline between legality and illegality". Contrary to the common perception of miners being primarily migrants, a large proportion of workers come from surrounding villages or nearby mining towns. Artisanal mining is often a family activity where children of all ages engage in various types of work and play in the quarries and mining sites where

their parents also work." In some countries a distinction is made between 'artisanal mining' that is purely manual and on a very small scale, and 'small-scale mining' that is partially mechanised and on a comparatively larger scale. In some West African countries like Mali, Niger and Burkina Faso, small-scale mining is differentiated from artisanal mining by the presence of permanent, fixed installations established once the existence of an ore body is confirmed. In this thesis, the terms artisanal and small-scale mining are used interchangeably.

These definitions, according to Hentschel et al (2002), described small-scale mining by making reference to the use of limited investment and scanty volume of operations, the low number of workforce, or the reduced mineral production. The local definitions vary from country to country according to the macroeconomic situation, the geological framework, the mining history and the legal conditions. Nevertheless ASM is characterized by a number of conditions, such as: lack or much reduced degree of mechanization with great amount of physically demanding work; low level of occupational safety and health care; deficient qualification of the personnel on all level of the operation; inefficiency in the exploitation and processing of the mineral production (low recovery of values); exploitation of marginal and/or very small deposits, which are not economically exploitable by mechanized mining; low level of productivity; low level of salaries and income; periodical operation by local peasants or according to the market price development; lack of social security; insufficient consideration of environmental issues; limited working and investment capital; and mostly working without legal mining titles. Mostly the development of the sector is in strong relation to the general economic indicators of the country: ASM is poverty related. (Hentschel et al, 2002).

2.2 Age and gender of working children in mining sites

For a proper understanding and address to be made on the problem of working children, age and gender as demographic variables cannot be relegated to the background. All across sub-saharan Africa and beyond, it is evident that children between the ages of six (6) and seventeen (17) years enter into mining and mining related activities with boys quite predominantly engaging in the hard work like the breaking or the crushing of rocks, entering tunnels and shafts while younger boys and girls engage in menial jobs like fetching water, washing minerals from the ore and running errands.

Hentschel et al (2002) attest to the fact that in Cerro Rico in Potosi, Bolivia children start washing gold from three (3) years on; from six (6) years on they can be seen breaking rocks with hummer and washing ore. Children as young as nine years can be observed underground, and at twelve (12), boys are outspread working underground in many countries and do the same work as adults. Thorsen (2012) states that, in a research which sampled 618 children from the alluvial diamond mining in Kono District, Sierra Leone in 2006, 73% of the working children were boys and 27% were girls. Girls are generally younger than boys; three-quarters of girls were below14years, whereas nearly half of the boys were in the age group 14-17years and 15% of the children were below 10years.

According to ILO/IPEC (2006), in Niger and Burkina Faso, children under 18 engaged in mining may constitute up to 30-50 per cent of the entire *orpailleur* workforce (estimated at between 200,000 and 500,000 across the two countries) and approximately 70 per cent of the children are under the age of 15, indicating that children start working from a young age.

According to the International Human Right Clinic (IHRC) report, (2009) on child miners in Sierra Leone, the ages of child miners primarily range from 8 to 17 years with majority of the child miners becoming school drop-outs at age 14 years or younger. The IHRC report further explains that, the impact of mining on children is not limited to boys; girls are both directly and indirectly affected by diamond mining activities. Many girls work in and around the mines, though they appear to be involved in support activities, such as carrying water or tools and selling food. IHRC researchers also received reports of girls engaging in commercial sex work. Throughout the mining areas, small groups of young girls were observed carrying food and water and selling items.

According to Mwami et al (2002), the number of children involved in different activities at mining sites varies from one activity to another. The actual mining activities involve mostly boys. Girls are primarily involved in restaurant activities, with a small percentage of boys involved in these activities as well. Girls are also employed as bar attendants close to mining sites.

A study made by World Vision found 9.9 percent of 497 children involved in mining activities to be female. These females spent all day at the mining sites, preparing food or performing other tasks. In another study, 168 of the 618 interviewees (27.2 percent) were girls; a majority of whom were under 14 years of age and involved in petty trading

around the mines. Finally, the local non-governmental organization Network Movement for Justice and Development interviewed 267 children engaging in activities in and around the diamond mines, 13.9 percent were female; most girls were reported to perform "less strenuous jobs like fetching water, cooking and carrying tools." Though not directly involved in mining, engaging in these activities appears to affect negatively school enrolment for girls (IHRC, 2009).

2.3 Push and pull factors that drift children into mining sites

According to Thorsen (2012), poverty is the most important reason why children of school-going age enter into mining work. Rural families diversify their revenues by taking up mining. If the farmlands of local farmers are seized by mining companies with little or no compensation, many experience increased poverty due to lack of alternatives. Some families and individual children work in mines to ward off starvation. In such cases, children's labour contribution may be important for household food security, especially if few alternative opportunities exist to earning an income. Children whose parents are incapacitated by illness or disability may make significant contributions to the household food security by offering to work in the mines. This view is supported in Hentschel (2002), that the reasons for child labour in mining are mainly poverty driven that is low family incomes in the ASM regions; the families do not have enough income for school material, clothing and food. Mwami et al (2002) on the same reason stated that poverty has been explained as the main reason for children engaging themselves in child labour in Tanzania. Parents, children and district officials mentioned poverty of the families as the major contributing factor pushing children to work in the mines to provide for their families and educational needs.

Again Thorsen (2012) expounding on the factors that push or pull working children into mines says that, Rural ASM communities experience a lack of provision of public education and health facilities; a situation that also caught the glimpse of Hentschel et al (2002). Children may enter mining work for lack of alternative options, including the opportunity to pursue primary and secondary schooling. The IHRC (2009) report combines the two reasons by saying that children drift into mining sites for lack of affordable and accessible basic education, coupled with the abject poverty faced by families in mining communities, leading parents to put children to work to supplement low household incomes.

Thorsen (2012) further believes that some younger children accompany their parents to play in the mining sites, while their mother or older siblings keep an eye on them while working on the mining site. This can be the result of a lack of childcare away from the mining site, or a need of the entire family to work to make ends meet. However, it can also be a choice motivated by beliefs in children's learning from being present in places of work. This attests to the fact that working alongside a parent or relative is the most common way for children to enter work in quarries and mining sites. Priester et al (2002), attest that, this beliefs outdoored by parents originate from their lack of interest in their children's education and the lack of parent's orientation concerning the future of their children.

2.4 Work arrangement, work environment and work conditions of working children

Working children are involved in a number of activities and tasks which are carried out under various physical and climatic conditions. Children work under direct sunshine and are thus exposed to high temperatures as well as to wind. They perform a range of activities including carrying bags of mud on their heads or backs to the sieving sites, washing sand and grit, removing alluvial sediments and digging sand or mud silk from river basins.

2.4.1 Working Hours and Working days

Children working at the three mining sites worked for long hours and hardly had time to play or rest. It was noted that children working in the mine pits aged between 7-9 years and between 10-13 years, worked for an average of four to five hours per day, while children between the ages of 14-18 worked for an average of seven hours per day. This was an hour less than the working hours of civil servants. Children working in restaurants and bars, who were primarily girls, faced a different situation. They worked for much longer hours than their colleagues working in the mining pits. On average, children aged between 10-13 years worked for nine hours per day, while those aged from 14-17 worked for fourteen hours per day. Working days varied with respect to the mining sites and to whether schools were closed or open. In Mlimanjiwa and Mgusu during school terms work activities were undertaken either during the morning hours or in the afternoon. This depended upon the time of day when children had to attend school. The children whose school timetable required them to attend class in the morning would

work in the afternoon and vice versa. On Saturdays, Sundays and holidays children worked throughout the day (Mwami et al 2002).

According to IPEC (2006) Children in the Sahel regions of Niger and Burkina Faso often work every day, although they occasionally get to rest for a day at the weekend. Working hours are extremely variable – from 8 to 14 hours – but almost always at least 6-8 hours per day (occasionally the children actually sleep underground). In many cases, children have insufficient time to rest and inadequate food and water. Again, those without parents are particularly at risk, having nowhere to secure a decent meal or safe place to rest before returning to work. In the IPEC report, researchers found that children trafficked from neighbouring Burkina Faso, Guinea and Mali worked ten hours a day, seven days a week and they were paid very little and were badly nourished.

According to Thorsen (2012), most children directly involved in mining work full-time five to seven days a week and often eight to ten hours per day**.** In Kono District, Sierra Leone, 70 per cent of the child diggers worked six to seven days a week and 44 per cent of them worked eight to ten hours per day. In the Democratic Republic of Congo, children working in the old mining sites abandoned by large-scale mining companies usually worked five days a week because security men frequently barred their access on Saturdays and Sundays. These children walked 6-12kilometres to reach the mining site and to pay between 100 and 500 Congolese francs [US$ 0.10-0.52] as an entrance fee to the security men guarding the site.

According to Gavin (2003) one issue that is highly relevant for the role of schooling in reducing child labour is the hours typically worked by children, and the regularity of their employment. For example, in Pakistan, among working children aged 5-14, 46 per cent worked more than 35 hours a week, or a full working week, 16 per cent worked 25-34 hours, 20 per cent 15–24 hours, and the remaining 18 per cent worked less than15 hours.

2.4.2 Occupational Health and Safety, Risks and Abuses of Children in Mining Sites

Child miners in mining camps are exposed to countless risks and abuses that have indelible consequences on their cognitive, affective and psychomotor domains. Thorsen, (2012) categorises the risks and abuses from the physical and the social perspectives. It is explained that, the physical risks are linked to the work itself comprising the arduous work of digging or pounding, the use of adult-sized tools, the transport of rock, gravel or

sand, and the lack of protective equipment, such as boots and helmets which cause both boys and girls to complain about muscle cramps, pain in their back and chest, and irritation, cuts and burns on the skin and many children take pain-killers to suppress the pain. Apart from the immediate risks of accidents, work that exceeds children's strength may impact negatively on their growth and development, especially if their calorie-intake is too low. IHRC (2009), also reporting on the physical risks child miners face in Sierra Leone writes, "artisanal diamond mining constitutes hazardous work that seriously jeopardizes the health and safety of child miners. First, repeated shoveling, transporting and washing of large amounts of gravel produce severe physical pain for child miners. Second, routine accidents cause major injuries and occasionally death in the pits. Children, given their smaller size and weaker strength, are at an even greater risk than adults," a situation that is firmly reported by Liwanga (2013), that the labour conditions in the artisanal mines is also extremely hazardous. Children use their bare hands and feet to extract minerals, and lift heavy loads of ore weighing up to 150 pounds. The lack of even minimal security and workplace precautions in the mines exposes children to high probabilities of fatal accidents, injuries and sicknesses. Minors suffer from exposure to radioactive minerals, poor ventilation and inadequate lighting.

Another set of risks according to Thorsen, encountered by children working in mining sites are physical risks linked with the work place and the exposure to dust, high levels of noise and, in some sites, toxic chemicals. Children in gold mining may be exposed to lead or mercury poisoning, as also confirmed by Mwami et al (2002), that mercury contamination caused by the amalgamation of gold in gold mining is an environmental problem of increasing concern and the exposure to mercury could have adverse effects on children. These conditions predispose children to a variety of health risks such as lung-related diseases, fever and bilhazia, headaches, pneumonia, stomach aches, dysentery, and malaria. There are other health risks which are subtle and indirect and whose adverse effects cannot be immediately observed (Mwami et al, 2002; Thorsen, 2012). It is quite interestingly alarming that many children's awareness about the hazardous and harmful nature of the chemicals which can kill them and their knowledge about occupational safety and health standards is zero, a situation exposed by Nauch et al (2006), when they reported that, 50% of child miners in Bornuer, Mongolia did not know that mercury is very harmful to their health while 87.5% expressed absolute ignorance about occupational safety and health standards.

Again mining camps are made up of a complex social structure and organization due to migrant miners that are of a diverse group that includes children coming without their parents, single men and women, some of the young miners spend their money immediately and openly on sex and alcohol, which raises concerns for the moral environment children are living in. Adolescent girls are seen as either promiscuous or as vulnerable to sexual abuse and exploitation, without examining what work they actually do and the risks they themselves link with their everyday lives(Thorsen,2012).

According to Human Right Watch Report (2011), it is estimated that between 20,000 and 40,000 children work in Mali's artisanal gold mining sector. Many of them start working as young as six years old. These children are subjected to some of the worst forms of child labor, leading to injury, exposure to toxic chemicals, and even death. They dig shafts more underground, pull up, carry and crush the ore, and pan it for gold. Owing to such hazardous occupation many children complain of headaches, pain in necks, arms, or backs, and risk long-term spinal injury from carrying heavy weights and from enduring repetitive motion. Children often sustain injuries from falling rocks and sharp tools, and at many occasions have even fallen into the shafts being grievously injured. In addition, they risk grave injuries while working in unstable shafts that sometimes collapse.

IPEC and ILO (2006), in describing the hazardous conditions under which children work in mining sites in some sub-Saharan countries and beyond said "Gold mining is an extremely dangerous work for children. Yet still today, tens of thousands are found in the small scale gold mines of Africa, Asia and South America. Children work both above and underground. In the tunnels and mineshafts they risk death from explosions, rock falls, and tunnel collapse. They breathe air filled with dust and sometimes toxic gases. Above ground, children dig, crush, mill, and haul ore – often in the hot sun. Some stand for hours in water, digging sand or silt from riverbeds and then carrying bags of mud on their heads or backs to sieving and washing sites. In all mining sites, there is risk of falling down open shafts or into pits that are scattered around the areas. Like adults, children suffer the effects of noise and vibration, poor ventilation and lighting, exhaustion and overexertion. But children are particularly vulnerable to exposure to dust and chemicals because their systems are still developing. The result can be serious respiratory conditions (such as silicosis), constant headaches, hearing and sight problems, joint disorders and various dermatological, muscular and orthopedic ailments and wounds, jeopardizing both their mental and physical long-term health."

In summerising the hazardous condition under which children work Hentschel et al (2002) states that the five major health risks in small-scale mining and processing, according to ILO are; exposure to dust (silicosis), exposure to mercury and other chemicals, effects of noise and vibration, effects of poor ventilation (heat, humidity, lack of oxygen), effects of over-exertion, inadequate work space and inappropriate equipment and the five most frequently cited causes of accidents in small-scale mines, according to ILO are: rock falls, subsidence, lack of ventilation, misuse of explosives, lack of knowledge, lack of training, violation of regulations, obsolete and poorly maintained equipment.

2.4.3 Work arrangements, wages and remunerations of working children

Working children perform hard labour for little pay and this fosters a low sense of self-worth in the children. Daily wages for child miners range from Le 500 to Le 2,000 (approximately US$0.15-US$0.60); while those digging on contract (i.e. who do not receive any percentage of their diamond finds) reported being paid Le 7,000 (approximately US$2.10) per day. In an industry marked by exploitation, child miners reported being denied their share of diamond proceeds as compared to those given to adults. Performing physically exhausting labour for virtually no pay, it is observed that child miners displayed a low sense of self-worth and little hope for the future. The situation facing child miners puts the Government of Sierra Leone in direct violation of its obligations under the Convention on the Rights of the Child to ensure an environment that fosters self-respect and dignity of the child.

According to Thorsen (2012) Children who receive a fixed daily salary rarely know the exact proceeds of their work as they are not involved in the final stages of extraction or in price negotiations. In Kono District, Sierra Leone, one-third of the miners are paid fixed salaries, 5-6,000 Leones [US$ 2.10-2.52] per day in 2006. Ninety-two percent of the miners were paid daily, because they were employed as casual labour and therefore not guaranteed work every day. Nevertheless, the income was relatively good compared to other types of jobs and those who had established links with employers were more likely to get work. Over one-third of the girls involved in mining in Ghana were paid daily and 30 per cent once a week. In contrast, boys from Benin working on a two-year contract in a quarry in Ogun State, Nigeria were paid small sums of money during their contract but were sometimes given a bicycle or a radio at the end of their stay if they had completed several contracts. A sum of 75-150,000 CFA francs (US$158-316) was

transferred to their parents every two years, amounting to a monthly wage of 3-6,000 CFA francs [US$ 6.32-12.65].

According to Liwanga (2013), in a sample of 63 child miners surveyed, only one in four are able to go to school part of the day. Seventy-five percent of those children were dropouts who work more than 10 hours per day. Their earnings range from $0.75 to $3 per day.

From the fore-going review on the wages and the salaries that children receive, it is evident that children are either paid in cash or in kind to the tune between less than 1 dollar and 12 dollars a month for the seriously arduous and bone-breaking work they do.

2.5. School enrolment, school retention and performance of working children

It is a faultless fact that school-going children who are also found in the labour front are seriously affected in all the domains of their personalities and this goes a long way to negatively affect children's performances and retention in school. The high dropout rate accompanied with child labour also grossly affect school enrolments.

In an ILO's report (2002), it is estimated that global child labour has grown exceedingly high, in that close to half of all children enrolled in school are also working. According to Canagarajah and Coulombe, (1997), Child labour interferes with education, in that, school attendance is foregone in favour of work, or learning is inefficient, either because the children are not allowed to spend time doing their homework or because they are unable to pay proper attention in school because of fatigue. UNICEF (2007) also report in its briefing paper on a study in Ghana that work has a detrimental effect on learning achievements in the salient areas of language and mathematics. This position is also accepted by Akabayashi and Psacharopoulos (1999) when they evidently stated from a Tanzanian data that, working children in Tanzania spend less time studying which is reflected in both mathematics and reading test scores.

According to Gibbons et al (2003) child labour (of which child mining is part) is associated with higher repetition and dropout rates. Heady (2003), agreeing with the statement above pointed out that, working children in Ghana spent an average of one hour per week less in school. This shows a very great propensity causing a clear pattern of high dropout (low retention) rates and poor academic performance in schools. Ray (2003), also observed that an additional hour of wage work done by children is

associated with more than one year's less completed educational attainment and Psacharopoulos, (1997) also paints a serious picture of a great propensity of high dropout among working children when he noted that, children in wage work in Bolivia have nearly a year less completed school than non-working children whiles working children in Venezuela have almost two years less attainment.

Worst of all the effects, Feigben (2010), gave a more elaborate perspective, by showing a fierce competition which exists between child labour, school attendance and proficiency. Feigben said that, children sent to work do not accumulate (or under-accumulate) human capital, missing the opportunity to enhance their productivity and future earnings capacity. This lowers the wage of their future families, and increases the probability of their offspring being sent to work. In this way poverty and child labour is passed on from generation to generation. Child labour does not only serve as an inhibiting factor which hinders children from acquiring the skills and education they need for a better future, it also creates a vicious cycle of poverty and affects national economies through losses in competitiveness, productivity and potential income.

ILO, (2006), in Feigben (2010) also reveals that early entry into the labour force reduces lifetime earnings by 13-20 per cent, increasing significantly the probability of being poor later in life. There is a general agreement that some trade-off between children in labour and human capital accumulation takes place. With respect to school attendance and progress, full-time jobs have the worst impact on children's future productivity. Part-time jobs, especially those that are physically very demanding, also disrupt education since children are too tired to participate adequately at school activities or to study at home. The age of entry into the labour force is also important in this context: the younger the child enters the labour force, the less human capital he/she will be able to accumulate. Child labour seriously undermines efforts to provide children with the necessary knowledge and skills to meet the challenges of the 21st Century. The long term effect of child labour on the nation is enormous and need to be addressed.

2.6. Projects and programmes mitigating the drift of school-going children into mining.

The mass drift of school-going children into mining sites and other auxiliary mining-related works has become a universal issue of great concern which has caught the glimpse of international organizations, governments, NGOs, corporate bodies and even

individuals who daily express the sense of urgency for mitigating or finding lasting measures that will help solve the problem. Countless numbers of programmes and projects have been undertaken and still on-going which aim to either totally eradicate or drastically reduce the entrance of children into child labour work in the mines.

International conventions aim to eliminate children's work in mining sites. Prohibition is supported by the United Nations Convention on the Rights of the Child, the ILO Convention No. 138 stipulating the minimum age for admission to paid employment, the ILO convention No. 182 calling for the elimination of the worst forms of child labour for all children below the age of 18 years, and the ILO Recommendation No. 190 which adds specifications to Convention No. 182 related to mining work in industrial exploitation and ASM (Thorson, 2012).

The ILO since 1919 holds an uncompromising doctrine on child labour that, labour carried out by children of 15 years or younger under conditions which stifle their physical, psychological and intellectual development must be eliminated. As early as 1921, the ILO passed the first Minimum Age Convention, and since then, the world has attempted to protect children's right to education and to prevent any child labour which would prejudice their school attendance (Gibbons et al, 2003 in Feigbin, 2010). Today, the Minimum Age Convention, 1973 (No. 138) is the ILO's main instrument on child labour.

The International Programme on the Elimination of Child Labour (IPEC) has also ensured the development of an effective partnership between government services, trade unions, non-governmental organizations employers' organizations, and other interested parties including universities and members of the media since its creation in 1992 with the overall goal of the progressive elimination of child labour. IPEC currently has operations in 88 countries, with an annual expenditure on technical cooperation projects that reached over US$61 million in 2008. It is the largest programme of its kind globally and the biggest single operational programme of the ILO (Feigbin, 2010).

Over the years many policies, programmes, projects and interventions which had international, national, regional and local components have been implemented to help to prevent or eradicate child labour in mining communities in especially developing countries. Among some of the successful intervention elements include; the provision of non-formal education for working children and later placing them in a formal education

programme, provision of day-care services for the pre-school aged children, provision of health education and care to mining communities, provision of functional education to parents of working children and offering opportunities for initiating income generating activities, the active and complete removal of children from the mines, the provision of transport facilities to children whose schools are located far from their communities, the provision of free meals or school feeding programmes and free school uniforms to affected mining communities and the improvement in educational infrastructure among many others.

Programmes focusing on awareness-raising campaigns and capacity-building according to Thorson (2012), come from the universal rights perspective and that they are rooted in the assumption that children work in mining sites because their parents and guardians are unaware of the dangers and that child protection legislation is not enforced because authorities are unaware of the extent of children's work or their vulnerability in mining sites. To this end, an ILO-IPEC quarterly report, reveals that, IPEC and TFTU (Tanzania Federation of Free Trade Unions) made a cooperate stride by sensitizing about 90 parents, teachers, employers, local and religious leaders and children on the problems of child labour in the twelve mines in the Tanzanian Mining and Construction (TAMICO) Sector. During this part of the project, 160 children were withdrawn from child labour in 12 mines in two districts (TFTU/ILO-IPEC. 1999).

According to ILO-IPEC (2005), a project executed by IPEC with financial support of the United States Department of Labour (USDOL) made a great impact on the direct beneficiaries, their families and communities in South America by withdrawing 2,667 children from mining work and preventing 5,845 children from entering it.

Silva(2013), articled that attendance rates in the primary school jumped from 66% to 94% in Guyana when the Ministry of Labour, Human Services and Social Security (MLHSSS) launched the School Retention and Child Labour Prevention and the SCREAM (Supporting Children's Rights through Education, the Arts and the Media) programmes which manifested in the provision of free transport to and from school, provision of nutritional support (free hot meals three days a week), after-school tutoring for working children, awareness-raising for teachers and school administrators, parenting education and counseling for children and parents.

2.7 Conceptual Framework: using Education to Eliminate Child Labour

Education is very indispensable to eliminating and preventing child labour, to creating an efficient and skilled workforce and to promoting development based on the principles of universal social justice and human rights. In recent years some level of success has been seen in raising public consciousness of the problem of child labour, of its potency and digressive nature and of the awful prospect on some developing countries of the world, for example, in parts of sub-Saharan Africa. The UN coupled with some other international agencies are also working to more tirelessly and effectively, creating a sustaining platform for the growing global movement to eliminate child labour. For a clear and an uncompromised link to be drawn between education and child labour, there is the need to first review the conceptual definitions of child labour.

2.7.1 Conceptual definitions of child labour

Due to the multifaceted nature of the concept of child labour, there has been no single conventionally accepted definition for it. To Weston (2005), Child labour is regarded as a social construct which differs by actors, history, context and purpose. Considering the complex nature of the phenomenon, and its many dimensional views, much emphasis will be placed on the International Labour Organisation (ILO) and United Nations Children's Fund's (UNICEF) perspectives on the subject.

2.7.2. The ILO Concept and Definition of Child Labour

The ILO concept of child labour is derived from the ILO Minimum Age Convention No. 138 of 1973, which sets 15 years as the general minimum age for employment. Any work in violation of Convention No. 138 is considered illegal child labour that should be eliminated. ILO introduces a distinction between child work, which may be acceptable, and child labour, which needs to be eliminated. In this regard, four groups of children engaged in work/labour are identified:

I. Children at work
II. Children engaged in child labour, including all economically active children 5 to 11 years of age; economically active children aged 12 to 14 years, except those doing light work only for less than 14 hours per week; and, children aged 15 to 17 years engaged in any type of hazardous work.
III. Children in hazardous work, that is, work that will likely harm the health, safety, or moral development of a child. In addition to children working in

mines, construction or other hazardous activities, this group includes all children below 18 years of age who work 43 hours or more per week.

IV. Children in unconditional worst forms of child labour, as defined by ILO Convention No. 182. This includes children in forced or bonded labour, armed conflict, prostitution and pornography, and illicit activities.

There are two points to note in this view of the ILO. Firstly, the first group covers activities that might be regarded as positive from an ILO perspective. The second and third groups cover child labour that deserves to be eliminated, and the fourth group requires an urgent action for elimination. Children under five years of age who are not included in these four groups are generally considered too young to be working. Secondly, the ILO definition covers only economic activity, that is, work related to the production of goods and services. Domestic work such as cooking, cleaning, or caring for children is ignored. The major criticism of this definition is that it is narrow as it underestimates the burden of work on children, especially for girls, who are more likely than boys to perform work in a household (Gibbons, Huebler, and Loaiza, 2005).

2.7.3. The UNICEF Concept and Definition of Child Labour

UNICEF has expanded the ILO definition of child labour by emphasizing the importance of domestic work by children, that is, in addition to economic work. UNICEF defines child labour as follows:

I. Children 5 -11 years engaged in any economic activity, or 28 hours or more domestic work per week;

II. Children 12-14 years engaged in any economic activity (except light work for less than 14 hours per week), or 28 hours or more domestic work per week;

III. Children 15-17 years engaged in any hazardous work.

The UNICEF definition has the advantage of theoretically capturing all work that children do. The definition of UNICEF provides a good indicator of child labour that is harmful to a child's physical or mental development. However, it is of limited value for an analysis of the trade-off between work and school attendance.

According to Ghana Statistical Service(2003),child labour is any activity, economic or non-economic, performed by a child, that is either too dangerous or hazardous and/or for

which the child is too small to perform and that has the potential to negatively affect his/her health, education, moral and normal development would constitute child labour.

According to the 1998 Children's Act, cited in GSS (2003), children under 15 years are not supposed to be employed but can do light work if they are 13 years and above. The Act also stipulates 18 years as the minimum age for the engagement of a person in hazardous work. In determining what constitutes child labour for Ghana, using the 1998 Children's Act therefore, children under 13 years who worked, children of all ages who worked at night(8.00 pm-6 .00 am), and children who engaged in economic activity which affect school attendance, health and the moral development of children have been taken into account.

The international community's efforts to achieve Education For All (EFA) and the progressive elimination of child labour are inseparably linked. On the one hand, education is a key tool in preventing child labour. Children with no access to quality education have little alternative but to enter the labour market where they are often forced to work in dangerous and exploitative conditions. On the other hand, child labour is a major obstacle to the achievement of EFA, since children who are working full time cannot go to school. For those who combine work and school, their educational achievement will suffer and there is a strong tendency for them to drop out of school to go into fulltime employment.

There is therefore a pressing need to build the capacities of all relevant government line ministries, the social partners, civil society, local, regional and national education authorities, teachers, parents, communities and other key actors in education to work towards the reduction of child labour through increased enrolment and completion rates for former child labourers, working children and children at risk, and through the provision of life skills and livelihood training for older children. This capacity building has been relegated to the background by many countries and government hence their inability to use education as a means and an end in itself in eliminating child labour.

2.7.4. Reasons for non-achievement of the educational goals in Developing countries

There is no single reason that can be assigned to countries' inability to achieve educational goals set for the world. There is however a set of interwoven reasons that have been categorized by Gavin (2003) to include; demographic factors, poverty, lack of priority to education by governments, and inappropriate mix of government educational

expenditures. Again many of the countries that have performed most poorly according to Gavin have been racked by civil wars or ethnic unrest and the poorest countries are characterized by low Gross Enrolment Ratio (GER) in the secondary schools because they are less urbanized and have much higher average population growth rates than the other countries. Referring to his categories of reasons for countries' inability to achieve educational goals Gavin enumerated as follows;

I. There is demographic obstacle faced by countries. That is countries with high fertility rates, which lead to high overall population growth rates, high proportions of the population in the school-going age groups, and high rates of growth of the school-age population, face a much tougher task in increasing school enrolment ratios than do countries with low fertility rates. Such countries, where the demographic structure is least favourable to educational development, tend to have the least developed educational systems. Another demographic phenomenon in many African countries which is causing added difficulty for educational planners is the high mortality rate resulting from HIV/AIDS. This affects the chances of raising enrolment ratios.

II. The poverty obstacle faced by many countries. First, poverty limits the budgetary ability of governments to provide sufficient school places for all even if the government gives high priority to education. Secondly, poverty limits the likelihood that a household will be able to afford to keep children in school, even if the places are there. There is abundant evidence that poverty is closely correlated with the incidence of child labour. According to Sweeting, and Muchlisoh (1998), other complex poverty resulted factors such as; inability to pay school fees; need for children to work to supplement family income; poor nutrition leading to low levels of concentration in class; more frequent absence from school due to ill-health, and as a result, poor performance in tests also serve as great impediments for the achievement of educational goals among countries.

III. Lack of priority to education by governments. Considering the large volumes of literature showing pre-eminent importance of mass education to human, social and economic development, it becomes incumbent on governments to devote a higher proportion of their resources to education than what they are doing today (Ranis et al, 2000). It can be persuasively argued that countries that have so far failed to provide universal basic education should be devoting a larger share of

national budgets to this end. This argument gains extra force in view of the large amounts of resources channeled to military expenditure and self aggrandizement by ruling elites or lost to waste and corruption in many countries. Governments claiming to be serious about wanting to eliminate child labour have a special responsibility to be serious about funding and developing a system of compulsory education.

IV. The inappropriate mix of public educational expenditures in the midst of educational priorities. This is evidently portrayed in the imbalances created when too large a proportion of public expenditure on education goes to tertiary education in many of the countries where primary and secondary enrolment ratios are low. The unit costs of a primary school place are much lower than those of a tertiary place, so diversion of some of the funds allocated to tertiary education could achieve considerable results in raising primary and secondary school enrolment ratios. The misallocation of funds to tertiary education is most marked in African countries. Public spending per student in higher education in Africa is about 44 times spending per student in primary school, much higher than in any other region. Despite the low gross enrolment rate at the primary school level in African countries, which should be providing a strong incentive to devote funds to primary education, the share of tertiary education in public spending on education is higher in Africa than in any other region. This implicitly indicates that such countries are not interested in providing equality of opportunity to children to get a start in building their human capital.

2.7.5 Indicators for monitoring improvements in educational coverage and quality from a child labour perspective

In order to determine the extent to which school- going children are attracted to work, the discussion on the improvements in educational coverage and quality from a child labour perspective is a subject worthy of discussion.

The Ministry of Employment and Social Welfare (2010), reporting on child labour monitoring system in Ghana clarified that effective child labour monitoring system (CLM) would imply the use of common monitoring tools and a common database or repository for the information. CLM activities at the local levels should feed into a coordinated information management mechanism at the national level. This may require

changes in existing information management systems. Developing and agreeing to a CLM framework requires political will, adequate national resources and a vision on mainstreaming child labour monitoring into existing systems of governance.

Gavin (2003) seeing in the spectacles of the MESW said that, for a better picture to be obtained of the prevalence of labour force participation by children who are enrolled in school, there is the need for great improvements in data needed to monitor the reduction in child labour on one hand, and the role of education in addressing this problem on the other. In the case of labour force, data can be obtained from census and surveys on ages of working children, recorgnised work activities, the time spent in school, household work and the pattern of time use both in school and on vacations. In the case of the role of education in addressing the problem of child labour, Gavin added that, education should be seen, not simply as providing a place where children must spend considerable periods of time, thus reducing the possibility that they will be employed in full-time work, but rather as playing a much more active role in creating a society where child labour is not seen as an option. In this context, the quality of education provided, especially to the children from poor background, is crucial. The database for monitoring educational quality needs to be capable of isolating problems of educational quality geographically and according to categories of schools. In this divergent data, including tests of literacy, mathematical competence, etc. among students are needed for monitoring the quality of education; and information on the qualifications and experience of teachers, on the hours actually spent by students in school per day, per week and per year, on the availability of textbooks and teaching aids, on the physical state of school buildings and their furnishings, and on the availability of water and toilets at the school are needed.

Carron and Chau (1996), added that the morale and dedication of teachers which is boosted by regularity in the receipt of salaries and effective supervision has been shown to have an important role in the performance of students hence a good data on this quality can do a lot of good.

Finally, Gavin (2003), expresses that attitudinal studies of parents and children are needed to indicate their perceptions about education and what it can do for them; about their perceptions of the quality of the schools serving their children; about compulsory

education; and about what work is appropriate for children to do, including those children who are in school.

2.7.6. Ways in which expanded compulsory schooling can assist in eliminating child labour

Damien (2005), stressing on the importance of education for development said that, on an individual level, education significantly increases a person's earning power, and also increases the capability to improve his or her quality of life. In particular, women's education has a demonstrable effect in reducing fertility and infant mortality. On a national scale, education improves a country's economic development as well as enhancing the confidence, and the freedom, of the populace to partake in political development, encouraging more equitable and representative governance.

Gavin (2003), raised a support for the possibility of compulsory education to assist in the elimination of child labour by enumerating the following;

I. Expanded compulsory schooling raises the opportunity costs to parents of their high fertility. It will therefore contribute to lowering fertility and to changing parents' calculus about children as economic assets in the short term; and to creating a new understanding whereby investing in the human capital of fewer children will contribute to the economic welfare of the family.
II. Lowered fertility, in turn, makes a positive contribution to economic development and elimination of poverty, and facilitates meeting the goal of providing universal basic education.
III. Human resource development through expanded schooling contributes to economic development and the elimination of poverty. Given the importance of poverty as a cause of child labour, child labour should thereby be reduced.
IV. With economic development, demand for child labour of the exploitative kind diminishes. This particularly applies to slavery and bonded labour, and labour of the kind that requires hard physical labour for minimal returns.
V. At the household level, compulsory schooling reduces (but does not eliminate) the opportunity for children to be employed exploitatively.
VI. Once schooling is legitimated as the proper place for children, it is less likely that children will miss or leave school to engage in work.

VII. Parents normally view school-going children differently, and are less likely to make strong demands on them.

VIII. Through contacts with teachers, exploitation of children can to some extent be monitored.

IX. Taking a longer-term view, expanding compulsory education now will facilitate the elimination of child labour in the next generation, because holding all other things constant, more educated parents are less likely to have their children working rather than in school.

2.7.7. Education system becoming more supportive to the objectives of eliminating child labour

Enforcement of education can be expected to play a significant role in reducing the problem of child labour. It is evident from the traditional point of view as stated by Caldwell (1982) that, parents benefit from the work provided by their children. For this reason when compulsory schooling is enforced, children become more expensive to parents and possess a great likelihood to lead to the decline in fertility as well as the new calculus giving weight to child quality, the tendency for parents to invest more in the education of a smaller number of children.

In order to expand educational enrollment in schools, Gavin (2003) said, there is the need for expanded basic education coverage which will require investments to expand school capacity, to train qualified teachers, and to provide suitable educational materials.

In many countries the designation of education as compulsory to particular ages is symbolic rather than a policy with any "teeth" because of the failure to provide enough school places and because of the realization that some parents simply cannot afford the costs of education due to household poverty which has been identified as the major cause of child labour. There is therefore the need to help poor households to keep their children in school rather than sending them to work.

To this end, Gavin (2003), suggested, five main kinds of economic incentive schemes to assist poor parents to keep their children in school. They are cash payments to low-income families; school vouchers; school-based food programmes; subsidies for school transportation; education with income from work in apprenticeship schemes. This idea is supported by Ravallion and Woden (2000), when they gave evidence that, the number of children participating in the market work decreased and school attendance increased in

Bangladesh when the Food For Education (FFE) programme was introduced. School attendance for children in households participating in the FFE programme increased because their basic need for which they go into the labour market was provided. Cardoso and Souza (2004), also stated that school attendance among children in Brazil increased under the Bosca Escola programme in which cash transfers were given to families. This consequently caused a drastic decrease in market work among children.

2.8. Lessons drawn from the Literature

Considering the literature review, it is clear that the issue of child labour in mining sites is real but because of the remoteness of small-scale mines and their operations on the border line between legality and illegality, there are inadequate reliable data which show the magnitude of the problem. All over the world school-going children are attracted to mining sites at early average ages between Six and Seventeen years which are below the conventionally accepted age of the ILO. Boys quite predominantly engage in hazardous work like the crushing of rocks, entering into tunnels and shafts while girls engage in menial jobs like, fetching water, washing minerals from ore, cooking and running errands.

From the literature reviewed, poverty has been a major determinant of child mining in Ghana and in most developing countries. Among other poverty-connected factors are; lack of educational facilities, inaccessibility or distances of homes from schools, children's quest to gain economic independence and poor performance of students.

Child labour in the mines has become a much pronounced problem in Ghana and many developing countries with detrimental prospects in the educational development and perhaps the human capital development of our societies. To solve this problem does not only hinge on the enactment and enforcement of laws but also in empowering individuals economically to be able to provide education to their children (Basu and Van, 1998). Education is seen as both a means and an end in combating child labour in the mines and thereby raising a high propensity of Human capital development which is one of the keys to reducing poverty. Education also opens up opportunities for better health, better nutrition, higher income and better standards of living, but the provision of universal basic education is shipwrecked with numerous challenges especially in the rural and mining areas. There are lack of infrastructural facilities and teachers in some of these areas, no means of transportation for students, lack of food and educational materials. As

a result some parents refuse to send their children to school because at the end of the day the school does not make any difference in their lives.

For the objective of using education to arrest the problem of child labour in mining sites to be achieved, governments need to uncompromisingly devote adequate resources to education and also make schooling compulsory, free and of good quality. Strict laws must also be enforced towards the protection of children's right to good and relevant education.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

The chapter describes the profile of the study district and the methods and procedures that were used in conducting the research. These involved the following: research approach, data needs and their sources, Sampling procedure and sample size, methods of data collection and instruments and data processing and analysis.

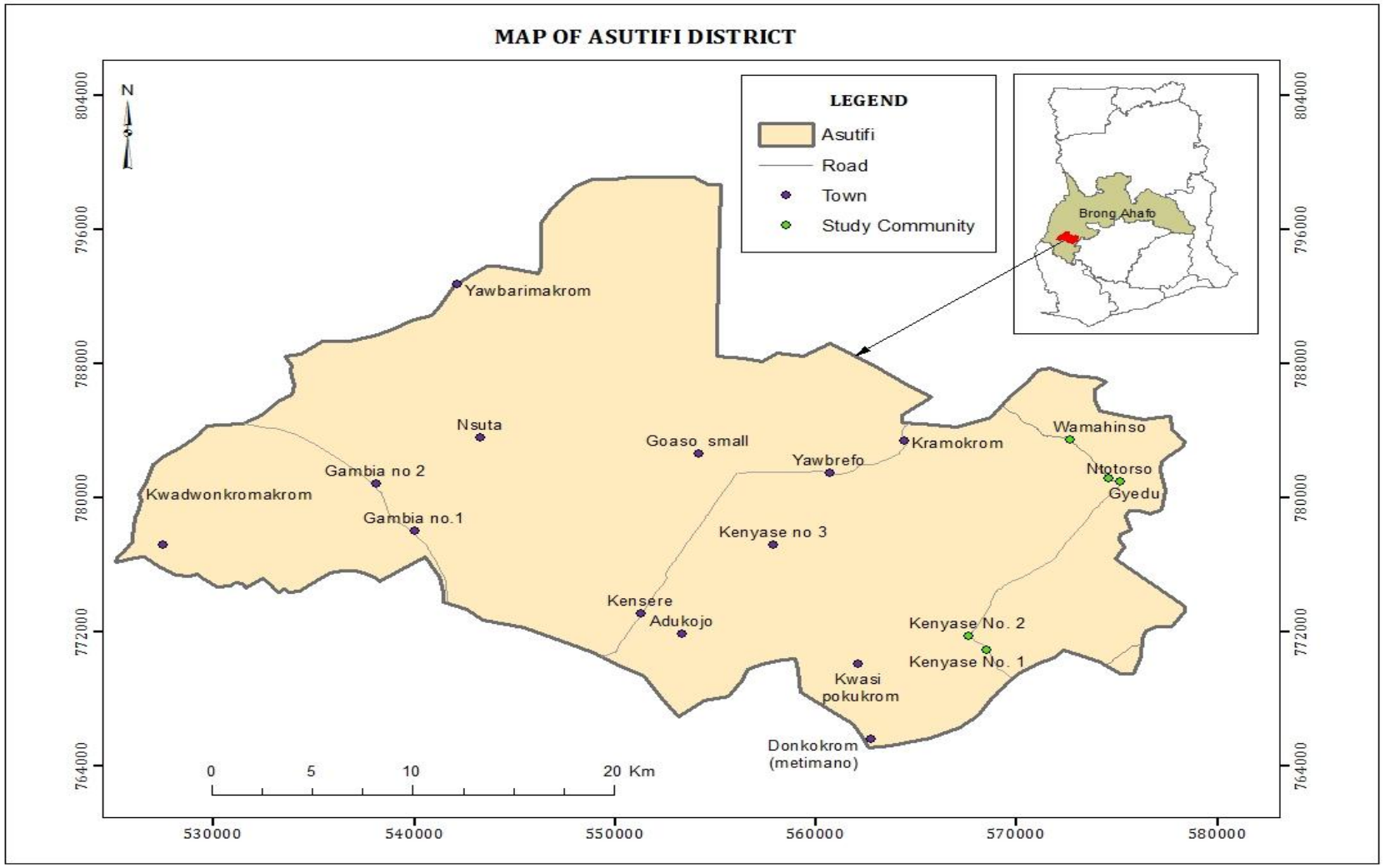
3.1 Profile of Asutifi District

This section discusses the profile of the study area. It considers both physical and socio-economic characteristics of the district which are relevant to the topic under discussion.

3.1.1 Location and size of the study area

Asutifi District is one of the 22 districts in the Brong Ahafo Region of Ghana which was carved out of a larger Ahafo District in 1988. It is located in between latitudes 7°00”N and 8°30”N, and longitudes 1°00”W and 2°30”W. The district is strategically located to the south-western part of the region and shares borders with Ahafoano North and South districts to the south-west, to the north with Sunyani Municipal and Dormaa Ahenkro Municipal and to the east with Atwima and Tepa districts in the Ashanti region of Ghana. Figure 3.1 show the map of the study area in national context and map of the study area showing the study communities respectively:

Figure 3.1: Map of study communities in the District and National levels



Source: KNUST, Geological Engneering Departement, 2015

3.1.2 Demographic Characteristics

The population of the district according the 2010 population and housing census in Ghana was approximately 105,843 in 2010 with the composition of a male population of about 55,046 and a female population of 50,797. Kenyasi is the district capital and it is about 50km away from Sunyani, the capital of the Brong Ahafo Region. The district has about 117 settlements and four paramountcies, namely: Kenyasi No.1 Kenyasi No.2, Hwidiem and Acherensua.

3.1.3 Physical Characteristics

The relief of the district is undulating and rises between 150 and 650 meters above sea level. The drainage pattern of the district is largely dendritic and flows in a south and south eastern direction. The major river in the district is the Tano. On climate and vegetation, the district lies within the wet semi-equatorial region, with a mean annual rainfall ranging between 1,500mm to 1,750mm. The district enjoys a double-maxima rainfall pattern with the major season occurring between April and July and the minor one between September and October each year with a little short break in the month of August and the major dry season occurring between November and March. Relative humidity is generally high, ranging between 75-85 percent during the rainy season and annual temperature range is between 4-5°c.

In terms of soil type and geology of the area, the district is underlain by clay and sand deposits. Sand deposits can be found at Kenyasi, Gambia No.2, Hwidiem and Acherensua whilst clay deposits are found at Nsunyameye and Dadiesoaba. The area is endowed with mineral bearing rocks of Precambrian rock formation of Birimian and Dahomeyan. These rock formations are known to be the gold bearing rocks which also have a high potential for Manganese, Bauxite and Diamond.

3.1.4 Land Use and Economic Characteristics

With regards to land use, the district lies within the moist semi deciduous forest zone of Ghana which is marked by double rainfall. Agricultural land use dominates with the majority of the people depending on farming as the source of livelihood and the principal means of employment. The population consists of farmers with limited income due to low output from small family farms. Non-farming sources of income are limited and two-thirds (2/3) of adults have no employable skills other than farming. Ethnic diversity

is high, due to immigration over the past 50 years of persons seeking land to farm. Agriculture accounts for about 65% of the labour force. This reflects the agrarian nature of the local economy. Major food crops cultivated include: cereals, legumes, plantain, yam, cocoyam, vegetables and cassava and are produced for both consumption and sale. Women are a large part of the agricultural workforce, and generate the majority of non – farm income (Newmont Ghana-RAP, 2005).

Currently gold is being mined in areas where the mineral bearing Birimian and Dahomeyan rocks are found by Newmont Ghana Gold Limited (NGGL). ASM operations are also on-going in these same areas where these rocks are found. The areas include; Kenyasi No.1 and Kenyasi No. 2, Ntotroso, Gyedu-Wamahinso and other smaller communities. However, other exploration activities are on-going in other communities within the district. Diamond is discovered at Wamahinso. There are rounded out crops of granite found over the Birimian rocks at Kwadwo Addae Krom, Goa Asutifi, Georgekrom and Konkontreso which have high potential of Iron and Bauxite.

3.1.5 Educational development and challenges

Despite the numerous problems facing the educational sub-sector in the district, it still appears that the district is making some significant strides in educational development. In a socio-economic survey conducted in 2006, 10.8% of the total sampled population had no formal education at all, and 71.5% had at least Basic education. The significant observation was the increase in the percentage of people who have had at least Senior Secondary School or Ordinary level education from 8.6% in 2002 to 11.7% in 2006. Only 3.3% of the sampled population had either Teacher training or Nursing training certificate.

Regarding the number of teachers and their various categories, the survey showed that there were 86 Kindergarten, 94 Primary Schools, 53 Junior Secondary and 4 Senior Secondary Schools in the District. It was also revealed that only 2.92% of the teachers in public schools at the Kindergarten level were trained. There were more trained teachers at the J.S.S. level as compared to that of the Primary and level. The situation in the private sector is not significantly different; however the private sector had very high percentage of untrained teachers at all levels. The teacher pupil ratios for the public schools were 1:36 for kindergarten; 1:37 for primary school; 1:17 for junior high school

and 1:20 for senior high school. The ratios for the private schools which do not so much deviate from that of the public school were 1:31 for kindergarten; 1:25 for primary school and 1:19 for JHS.

There are many challenges facing the education sector in the Asutifi district. Mention is made of the following challenges:

Insufficient accommodation for teachers and office staff; Lack of commitment and dedication by teachers; Lack of qualified teachers; Truancy, early attraction to money, indiscipline, frequent attendance to video shows and wake-keeping etc. by pupils; Parent's failure to provide children with basic school needs, use of girls as house helps or baby sitters, child labor, poor functioning of many SMCs, conflict among SMCs/ PTAs and unit committee members over their roles and functions, poor infrastructure; lack of transport for Circuit Supervisors to facilitate supervision and monitoring and many others.

3.2 Research Design

The research approach was a mixed type comprising descriptive multiple case study and a survey because while the survey was most suitable for data collection and analysis on some variables under study, the case study was equally most suitable for other variables as well. The survey was suitable for analysing quantitative data and helped the researcher to strive for breadth rather than depth towards making valid observations. On the other hand, the case study sacrificed breadth for depth, allowing the researcher to do a thorough assessment of phenomena in gaining insight into processes through a qualitative research approach (Verschuren, 2003 and Anane, 2012). These approaches wield the purpose of examining the effects of mining activities on children's education in the Asutifi District. The children in basic school level in the Asutifi District (Kenyasi No1, Kenyasi No2, Ntotroso, Gyedu and Wamahinso) in the Brong Ahafo Region were chosen as the case in this study.

According to Yin, (1994, 2003), "a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when boundaries between phenomenon and context are not clearly evident. It gives room for the researcher to explore individuals, organizations, simple to complex interventions, relationships or programmes with the underlying notion of understanding in breadth and depth of the specific situation or phenomenon to be studied within its context. This

allows the researcher to fully grasp the context of the issues under study from the people concerned for the purposes of validating a proposition.

In like manner, Yin (2003) posits that a case study is suitable for examining "why" as well as "how" and "what" questions (in the midst of: "who", "what", "where", "how" and "why" series of questions).These are enquiries about a contemporary set of events over which the investigator has little or no control and especially, the "how" question is suitable for a case study.

The reason why the case study approach is chosen is that it has the advantage of producing good amount of information from a wide range of people. It affords researchers the opportunities to explore or describe a phenomenon in context using a variety of data sources (Baxter and Jack, 2008). Again, it provides a meaningful and accurate picture of events, conforming to the views that, case study brings a close collaboration between the researcher and the participants, by enabling participants to tell their stories (Crabtree and Miller, 1999). Through these stories, the participants are able to describe their views of reality and this enables the researcher understands the participant's action. This according to Anane, (2012), helps to explain people's perception and behaviour on the basis of data collected at a point in time.

Case study research is also known for its flexibility, in-depth study of phenomenon, ability to help the researcher understand complex interrelationships, its position in "lived reality" and its adaptability to different study objectives (Phil and Heather, 2001). Again, the case study approach allows the researcher to do a thorough assessment of phenomenon in gaining profound insight into processes through qualitative analysis (Anane, 2012).

3.3Reconnaissance Survey

In order to help the researcher to acquaint himself with the study area and to be able to obtain reliable data for the study, a preliminary reconnaissance survey to the District was conducted. This gave the researcher the opportunity to formally visit the study area and the communities involved and to obtain first hand information on the key activities, the geographical location, and physical characteristics of the area. The process was useful as it helped me to know the major communities and to conduct a pre-test of the questionnaire to be administered. The process of pre-testing the questionnaire helped to put the questions into the right perspectives as well as to establish some internal

consistency among the questions in order to identify the relevance or otherwise of the questionnaire.

Moreover, the survey equally gave an insight into some aspects of the socio-economic conditions and characteristics of the study area. It offered the researcher the opportunity to request for the constituents of the sampling frame, get important information on educational institutions and other relevant data for the study.

3.4 Sample Size Determination

The target groups for this study include opinion leaders in the communities, parents, children both in school and out of school, and teachers. Also, institutions that were studied included the Ghana Education Service and the District Assembly in the Asutifi district of the Brong Ahafo Region. Respondents from these institutions were interviewed because information about child mining and children's education could be obtained there. The District Assembly as the planning authority initiates and supervises developmental projects and programmes, so it has the authority to speak about development problems in the district including the influx of children into the mining sites.

According to the Ghana Statistical Service (2014), the 2010 Population and Housing Census reports that, the total number of households in the district considered for this study is 51,524 and this formed the sample frame of the study. The households were chosen for the sample frame since members of the entire population like infants could not be considered potential respondents for a study of this nature. The Miller and Brewer (2003) mathematical formula below was used to calculate the sample size since every household was considered a potential respondent.

$$n = \frac{N}{1 + N\,(\alpha)^2}$$

Where 'N' is sample frame, 'n' is the sample size and 'α' is the margin of error which in this case is 8%. The 92% confidence interval was chosen for this study because the study deals with human beings where accuracy of information is subject to biases unlike the physical sciences with high degrees of certainty. By the formula, N=51,524 and α= $(0.08)^2$

$$n = \frac{51,524}{1+51,524(0.0064)}$$

$$n = \frac{51,524}{}$$

$$n = 156$$

Five communities in the study area were selected for the survey. These communities are Kenyasi No1, Kenyasi No2, Gyedu, Wamahinso and Ntotroso where 156 households were sampled for the survey. Child labour in mining is mostly found in these communities and also, the major target groups in the study area are well represented in these communities. Twenty (20) children who have gone into mining sites were selected for interview. This was necessary to solicit first-hand information on the salient research questions pertaining to this research. One hundred and thirty (130) respondents were sampled from the five communities and the remaining six respondents were selected from the District Education office and the District Assembly. This made a total of 156 respondents.

3.5 Sampling Procedure

Different sampling techniques were used to sample respondents for the study. Purposive sampling was used to select officials of the District Education service and the District Assembly. This was adopted because of their knowledge in the phenomenon under investigation and the need for them to clarify issues that were seen contradictory. The snowball sampling approach was used to select the working children who have gone into mining due to the nature of the research and the thin line between legality and illegality of children going into mining. The rest of the respondents comprising household heads and teachers were selected through the simple random sampling approach. In this process, households and schools assigned with numbers from the five communities were written on slips of papers, mixed thoroughly in a container and drawn as a lottery one after the other until the required number of respondents was obtained.

With respect to enrolment, dropout and other secondary data, an authority note was obtained from the Department of Planning at KNUST to the District Education Office and the District Assembly requesting them to offer the researcher all necessary supports and information needed for the research. This was followed by series of personal visits to those offices before all relevant information was obtained for the study.

3.6 Data Collection and Instruments and Sources of Data

The primary instrument of data collection that the researcher used was the semi-structured questionnaires. Other methods such as observation and interview were also used to supplement the questionnaires. The researcher also reviewed existing secondary records on children's education and educational supports from the District Education office and the formal mining sector. This method of data collection which involved the combination of two or more data collection tools enhanced triangulation whereby the flaws and weaknesses of one tool are pacified or complemented by the strength of the other tool.

The researcher administered the questionnaires personally to the respondents in other to ensure that copies got to the right respondents at the right time and also to ensure that respondents had the opportunity to respond to follow-up questions. The questionnaires were used to source information from teachers, education officers and officers from the formal mining sector with focus on the objectives of the study. Some of the questions demanded simple 'Yes/No' answers and others demanded straight forward responses.

The interview guide and observation were used to source first hand information from household heads and working children. Before administering interviews, the purpose and relevance of the study was first explained to prospective respondents. The explanation of the rational and purpose was done to build trust with the interviewees in order for them to gain a clearer understanding of what was expected of them.

3.7 Validity and Reliability

Validity refers to the extent to which an instrument measures what it is designed to measure (Adarkwa, 2014). The researcher made sure that reliable procedures were followed in order to guard against fictitious and extraneous data gathered for the study. With respect to reliability of the data gathered, the researcher ensured that, there was a high degree of consistency and accuracy by making sure that each instrument measured variables that it was supposed to measure. As a result, all the data gathered on the variables of the study were from varied sources for the purpose of triangulation and validation of information.

Moreover, the data collected related to the operational objectives of the study on periodic basis. This process of collecting data from different sources and relating them to each other and the operational objectives of the study provided a substantiation and

triangulation of constructs and hypotheses. Again, to ensure reliability and future replication of the study, all required logical stages of conducting research were followed.

These included identification of the problem, formulating of objectives, and research design of the study. The scope and conceptual framework of the study were duly documented. Invariably, all sources relied on from which both the primary and secondary data were obtained were provided. Furthermore, the process of data collection were explained and the guidelines for conducting the interview were duly and logically provided in order to ensure that the outcome is logical and scientific as required of research.

3.8 Data Processing and Analysis

For the sake of consistency and accurateness, the completed questionnaires were first edited. The key responses given by the respondents in the open-ended items were short-listed from the original responses. The descriptive statistical tools were used in the data analysis because of the descriptive nature of the study. The data which was put into frequency distribution tables and percentages was interpreted and analyzed using both descriptive and quantitative approaches. Statistical methods such as frequency distribution tables, elaborations and cross-tabulations with the aid of the Statistical Package for Social Sciences version 16 (SPSS v16) were used to explore the effects of mining activities on children's education in Ghana. With regards to some qualitative data, the researcher used narratives to tell the story from the respondents. The issues gathered from the field were synthesised and put in a logical narrative to give the views of the respondents. Responses from respondents were recorded and put together in a fashion that allowed comparisons and deviations from the literature reviewed.

CHAPTER FOUR
ANALYSIS OF DATA

4.0 Introduction

This chapter deals with the analysis of the data collected for the study. This chapter shows the analyses of data collected through semi-structured questionnaires and in-depth interviews with working children, teachers and parents (household heads.) to ascertain the effects of mining activities on children's education in the selected communities. The analysis considers the socio demographic characteristics of the respondents, the socio economic impact of the advent of mining activities on the residents in the catchment communities, the factors that push school-going children into the small scale mining sites, the detrimental effects or otherwise of mining on school enrolment, performance and dropout, and what the government(the district assembly and the G.E.S), the Newmont mining company and other stakeholders are doing to solve the problem of mass drift of children into the mine sites.

Analysis on variables specific to working children was done with a total of 20 child respondents and that which are only specific to household heads and teachers are done using a total of 136 respondents. However, questions which were commonly answered by the two groups were analysed based the total of 156 respondents.

4.1. Socio-demographic characteristics of respondents

Table 4.1 below shows the age categories of working children. Among the 20 working children that were interviewed, 1(5%) was in the 10-13 age category, 12(60%) were in the 14-17 category and 7 children (35%) were above the age of 18 years. This implies that more of the children who are working in mines in the catchment areas were between the ages of 14 and 17 years which shows a gross departure from the standard United Nations Convention on the Rights of the Child, the ILO Convention No. 138 stipulating the minimum age for admission to paid employment to be 18years and above, the ILO convention No. 182 calling for the elimination of the worst forms of child labour for all children below the age of 18and the UNICEF standard of not engaging children between the ages of 15-17 in hazardous work.

Table 4.1: Age of respondents (children)

Age group	Number of respondents	Percentage
10 – 13	1	5
14 – 17	12	60
18+	7	35
Total	**20**	**100**

Source: Author's Field Survey, June, 2014

Table 4.2 shows the age distribution of household heads and teacher respondents. About 33 percent of the respondents were between 40 and 49 years, about 32 percent were between 30 and 39 years while about 20 percent were between 20and 29 years of age. Majority (84.6%) of the heads of the households and teachers are less than 50 years old.

Table 4.2: Age of respondents (household heads and teachers)

Age	Number of respondents	Percentage
20 – 29	27	19.9
30 - 39	43	31.6
40 - 49	45	33.1
50+	21	15.4
Total	**136**	**100**

Source: Author's Field Survey, June, 2014

The information on the sex (gender) of working children is presented in Table 4.3 below. Fourteen children, representing 70 percent were males, while 6 children representing 30 percent were females. This shows that both girls and boys were attracted to mining sites in the study area but more boys patronized the mines sites than girls.

Table 4.3: Sex of respondents (Children)

Sex	Number of respondents	Percentage
Male	14	70
Female	6	30
Total	**20**	**100**

Source: Author's Field Survey, June, 2014

Table 4.4 presents information on the sex of adult respondents that is, teachers, household heads and some officers, surveyed in the study area. About 69.9% were males and about 30.1% were females. This portrays the male dominance in the society.

Table 4.4 Sex of Respondents (Adults)

Sex	Number of respondents	Percentage
Male	95	69.9
Female	41	30.1
Total	**136**	**100**

Source: Author's Field Survey, June, 2014

When respondents were questioned on their marital status, 87 people (64%) said they were married, 37(27.2%) had never married, 8(6%) were divorcees and the remaining 4 people (3%) were either widowed or separated. This implies that many of them were married and had children.

Table 4.5 Marital status of respondents (Adults)

Marital status	Number of respondents	Percentage
Single	37	27.2
Married	87	64
Divorced	8	5.9
Widowed	1	0.7
Separated	3	2.2
Total	**136**	**100**

Source: Author's Field Survey, June, 2014

Table 4.6 shows information on types of occupation in which respondents were engaged. Due to the nature of the research which required a larger sample of teachers who work directly with children in the classroom, 78 respondents representing approximately 57% were teachers. The entire society is predominantly made up of agrarian communities, with 29 respondents (21%) depending on farming or cropping which co-exist with mining activities in the face of a fierce battle for land. Sixteen respondents (11.8%) said they were trading, while 4 people (2.9%) were pensioners. The rest of the 6(4.4%) were either into mining or other jobs.

Table 4.6: Occupation of respondents

Occupation	Number of respondents	Percentage
Farming	29	21.3
Trading	16	11.8
Mining	3	2.2
Pensioner	4	2.9
Teaching	78	57.4
District assembly	3	2.2
Others	3	2.2
Total	**136**	**100**

Source: Author's Field Survey, June, 2014

Table 4.7 shows the educational levels of working children. Fifteen (75%) out of the 18 children that were still in school responded that, they were in the JHS and 3(15%) said they were in the primary school. This shows that greater percentage (90%) of the children combined schooling with working in the mines. This creates a situation which may be detrimental to academic performance of children in school. Two (10%) of the working children had dropped out of school and were working full-time in the mine site.

Table 4.7: Educational level of respondents (children)

Level	Number of respondents	Percentage
J H S	15	75
Primary	3	15
Drop out	2	10
Total	**20**	**100**

Source: Author's Field Survey, June, 2014

When asked of the educational levels of the adult respondents 61(44.9%) had completed their tertiary education with degrees and diplomas. A larger number of the sampled population belong to the teacher category of respondents. Sixty respondents (44.1%) had basic education, 14(10.3%) had secondary education and only 1(0.7%) had no formal education. This implies that if all the people in the study area who had completed the basic education could read and write, then literacy level could have been high in the study area.

Table 4.8: Level of education of respondents (Adults)

Level of Education	Number of respondents	Percentage
No formal education	1	0.7
Primary	9	6.6
Junior high	23	16.9
Senior high	14	10.3
Tertiary(Degree, Diploma)	61	44.9
MSLC	28	20.6
Total	**136**	**100**

Source: Author's Field Survey, June, 2014

Table 4.9 shows the responses which sought to establish the relationship that existed between providers or sources of household income and the issue of children going into mining. As many as 89(57%) respondents said household income in the study area was provided by fathers, 38(24.4%) said the provision of household income was a shared responsibility of both fathers and mothers, 22(14.1%) said the provision of household income was the sole responsibility of mothers and only 7(4.5%) said children provide household income. This implies that about 95.5% of household income in the whole study area is predominantly provided by parents with a greater share coming from fathers. This may also be in consonance with the fact that the society is a male-dominated one. It is therefore noteworthy that though children's reason for going into mining to provide household income was not a very major one since only 4.5% of the 156 respondents agreed to that reason.

Table 4.9: Providers of household income

Income providers	Number of respondents	Percentage
Father	89	57.0
Mother	22	14.1
Children	7	4.5
Both father and mother	38	24.4
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

4.2. Reasons for Child Labour in Mining.

When asked about the factors that pushed children to go into work at "galamsey" sites or the causes of child labour in mining, 131(84%) said the major causes were poverty, children's uncontrolled desire to get economic freedom like their peers or friends giving a confirmation to the fact that many of them get to know the mine sites through their friends. They also said children go into mining in order to get money to buy their educational needs and some of them due to their poor academic performance in school they do not see the need to waste "precious time" in pursuing academic success which to them is a mirage. Other children also go into mining because their houses are very close to the mine site than their schools so they see it very profiting to walk short distances to the sites and also get immediate returns than going to school. Sixteen (10.3%) of them said children work in mining site due to poverty which makes it increasingly difficult for their parents to provide the basic needs of their households. Only 9(5.7%) respondents said the powerful steering force which drive children into mining were; children's desire to have economic freedom that is to get out of the economic grips or dependence on their parents. These responses are shown in table 4.10 below.

Table 4.10 Factors that push children into mining work

Reasons for child labour in mining	**Number of respondents**	**Percentage**
Poverty: Parent's inability to provide for family needs.	16	10.3
Poverty; desire for economic freedom; money for educational needs; poor academic performance and children's houses closer to mining sites.	131	84
Children's desire to have economic freedom and children's houses closer to mining sites.	9	5.7
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Table 4.11 shows how working children got to know the mine sites. Out of the 156 respondents, about 79(50.6%) said children got to know the mines by following their friends, 42(26.9%) said, children discovered the mine sites themselves, 33(21%) said children follow parents to help them work in the mines. This implies that greater number

of the children got into mining by following the peers and it is almost 80% sure that children's decision to go into mining sites is void of parental influence.

Table 4.11: How children got involved in mining

How children got into mines	Number of respondents	Percentage
Follow parents	33	21
Follow friends	79	50.6
Self	42	26.9
No response	2	1.5
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Table 4.12 shows the response of children as to whether they have absented themselves from school into the mines before. All the 20(100%) children said in that they have ever forgone school attendance for mining. When asked of how frequent they did it, 10(50%) said that they absented themselves for mining less than a week in the whole academic year while 7(35%) said that they were out of school between 1-2 weeks, 2(10%) were out of school for 2-3 weeks in the academic year and only one had more than a month out of school due to mining activities.

Table 4.12: Number of days children absented themselves from school and went into mining

Number of days of absent	Number of respondents	Percentage
Below 1week	10	50
1 - 2 weeks	7	35
3 - 4 weeks	2	10
Above 4 weeks	1	5
Total	**20**	**100**

Source: Author's Field Survey, June, 2014

4.3. Work arrangements and working conditions of children in mine sites.

The researcher wanted to know the average number of children who patronize the mine sites in a day. The responses are in table 4.13. Out of the 20 working children interviewed, majority (75%) of them said on many occasions they meet an average number of 11-20 children in each "ghetto" (small mining concessions created and owned

by individuals called "Boss or Master"). Four (20%) of them said they meet an average of 1-10 children in each "ghetto" everyday and only 1(5%) said, over 20 working children are met in a "ghetto". This numbers may be doubled or tripled depending on the number of ghettos in an area.

Table 4.13: Average number of children who work in the mines daily

Average number of children	Number of respondents	Percentage
1-10 children	4	20
11- 20 children	15	75
Over 20 children	1	5
Total	**20**	**100**

Source: Author's Field survey, June, 2014

Table 4.14 shows the responses to the question on the perceptions of respondents about the types of work that is done by boys, girls or both. About 75(48.15%) out of 156 said that running of errands in mine sites is done predominantly by boys and 56(35.9%) said it is done by both. About 81(51.9%) said that the washing and sieving of sand grits is done by both boys and girls. About 120(76.9%) said that the digging of sand from rivers is predominantly the duty of boys and about 140(89.9%) said that the digging of sand from holes and underground pits are also done predominantly by boys. One hundred and five (67.3%) said that cooking of food for the workers is done mainly by girls. Majority (70.5%) said the carrying of ore to the processing plant or mill is done by both boys and girls and majority (72.4%) said watch dog activities is done predominantly by boys.

Table 4 .14: Type of work by Sex

Gender	Type of work													
	Running errands		Washing and Sieving sand		Digging sand from river		Digging sand from pits underground		Cooking for workers		Carrying mud to processing plant		Watchdogs against invasion	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Boys	75	48.1	41	26.3	120	76.9	140	89.8	11	7.1	14	9.0	113	72.4
Girls	25	16.0	34	21.8	8	5.1	3	1.9	105	67.3	32	20.5	12	7.7
Both	56	35.9	81	51.9	28	18	13	8.3	40	25.6	110	70.5	31	19.9
Total	**156**	**100**	**156**	**100**	**156**	**100**	**156**	**100**	**156**	**100**	**156**	**100**	**156**	**100**

Source: Field Survey, June, 2014

Table 4.15 gives information on whether children are given permanent (full time) employment or part time employment. One hundred and fifteen(73.7%) respondents out of 156 respondents said that children worked on part time basis thus during weekends, on holidays, vacations and when they intentionally absent themselves from school to go into the mines. Thirty-nine (25%) responded that children work on full time basis and 2(1.3%) did not respond to the question. This implies that a greater number of working children work on part time basis especially after school, on weekends, holidays, on vacations is which supposed to be refreshing and resting periods where children resuscitate themselves for their academic work.

Table 4.15: Children's employment status

Status of employment	Number of respondents	Percentage
Full time	39	25
Part time	115	73.7
No response	2	1.3
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Pertaining to the number of hours children work in a day, Table 4.16 shows that, 77 (49.4%) of the 156 respondents said children worked from 11 to 16 hours a day, 38(24.4%) people said children worked between 6-10 hours a day, 21(13.5%) people said children worked between 1-5 hours a day and 18(11.5%) said that children worked more than 17 hours. Only 2(1.3%) respondents did not answer the question. This implies that many of the working children worked on the average between 11-16 hours every day showing about 2-6 hours more than the working hours of civil servants and it is also a gross departure from the ILO standard of working hours for children below 18 years. From the interview conducted with a working boy from one of the schools in Ntotroso and a girl also from a school in Kenyasi No1 gave the same response on the number of hours they work *".....we can at times start work from 5:00 am to 7:00pm with a little short rest/break of about 1 hour."* This condition is undeniably capable of adversely affecting the educational performance, physical and mental development of children and thereby threatens serious distortions in the human capital formation in the district in the near future.

Table 4.16: Number of hours children work in a day

Working hours per day	Number of respondents	Percentage
1-5 hours	21	13.5
6-10 hours	38	24.4
11-16 hours	77	49.4
17 hours/ more	18	11.5
No response	2	1.2
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Considering the occupational safety of working children, 156 respondents were asked whether or not children experienced any type of harassment in the mine sites. Table 4.17 shows that 121(77.6%) respondents said that children indeed experience one type of harassment or the other and 32(20.5%) people said children do not experience any form of harassment. This means that many children who go to mining sites to work suffer a lot of harassment in the process of executing their work in the mine sites. This harassment initiates a degenerating impact on children which may go a long way to either weaken or demoralise children from doing effective academic work.

Table 4.17: Views on whether children face harassments in mine sites

Views	Number of respondents	Percentage
Children were harassed	121	77.6
Children were not harassed	32	20.5
No response	3	1.9
Total	156	100

Source: Author's Field Survey, June, 2014

Table 4.18 shows the types of harassments that children faced in mine sites which are sexual abuse, verbal abuse and beatings. Fifty-eight (37.2%) out of 156 respondents mentioned that all the three types of harassments were very common in mining sites; 30(19.2%) said that both sexual abuse and beating were very common and 26(16.7%) confirmed that only beatings and verbal abuse exist in mine sites and the remaining 39 (25%) people said that only one type of harassment occurs in the mine sites. These harassments especially the sexual abuse has led to the increase in teenage pregnancy among the girls who work at the mines.

Table 4.18: Type of harassments experienced by children

Type of harassment	Number of respondents	Percentage
Sexual abuse only	11	7.1
Beatings only	8	5.1
Verbal abuses only	20	12.8
Sexual, verbal and beatings	58	37.2
Sexual abuse and beatings	30	19.2
Beatings and verbal abuse	26	16.7
No response	3	1.9
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

4.4. Wages and how they are spent

When respondents were asked about how children were paid after their work in the mine sites as shown in Table 4.19, 95(60.9%) out of 156 respondents said that children were paid in cash, 20 (12.8%) said children were paid in kind but 41(26.3%) said children were sometimes paid in cash and are in other times paid kind. The payments in kind according to some of the respondents were basically what the local miners called "load", which means part of the gold baring sand and gravels which has been dug from underground. It is then washed and taken to the grinding mill where it is ground and the gold extracted and later sold for money. This shows that many children were paid in cash after their work. From the responses of interviews made with the working children, they earned an average amount of about Gh ¢350 ($106 US) a week and about Gh¢1400($424 US) a month, which is higher than the salaries of many civil servants in Ghana.

Table 4.19: How children are paid for their work in mine sites

Mode of payment	Number of respondents	Percentage
In cash	95	60.9
In kind	20	12.8
Both	41	26.3
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Table 4.20 gives information on how children spend the earnings. About 55 (35.3%) out of 156 respondents said children spend their earnings on food in the school and in the

house. This high percentage of earning spent on food emanates from the fact that there is high cost of living since mining operations in the study area has led to the loss of many farmlands which hitherto were supplying abundant food in the district. Thirty(19.2%) respondents said they spend their earning on clothing, 20 (12.8%) said they spend their earnings on educational needs, 43(27.6%) said children spend their earning on all the three and only 5 (3.2%) said children use their earnings to support family expenses. One boy said in the interview *"I work to support my father's finances because my mother is not with us and we are many…… I give Gh.¢100 every week to support household needs and the up-keep of my younger siblings."* A girl also said *"I work for my parents and they use the proceeds to take care of my needs"* This implies that greater number of children, about 96%, spend their earnings on food, clothing and educational needs and very few of them use their money to support household expenses.

Table 4.20: How children spend their earnings.

Spending	Number of respondents	Percentage
Buying food	55	35.3
Buying clothing	30	19.2
Buying educational needs	20	12.8
Supporting family expenses	5	3.2
Buying food and clothing	22	14.1
Buying food, clothing and educational needs	21	13.5
Others	3	1.9
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

4.5. Occupational health and safety, risks and abuses on working children in mining sites.

Children are exposed to many risks, dangers and accidents due to the nature of work and working conditions in artisanal and small-scale mining ("galamsey") sites. Out of the 156 respondents who were questioned on the types of accidents or risks that working children experience in the mine sites, 104(66.7%) said that, children were exposed to various types of injuries from falling rocks and sharp tools, and on many occasions some fall into shafts and get grievously injured. This picture is clearly painted in the literature

by the Human Right Watch Report (2011). In addition to the various injuries, the respondents said, children also suffer respiratory and auditory defects due mainly to the dusty and noisy conditions they work in. Again some children die due to explosions, rock falls, and tunnel collapse as posited by IPEC and ILO (2006). Twenty-two (14.1%) said, children were exposed to poisonous chemicals like mercury which can cause acute lunge malfunction or even kill them since their knowledge about occupational safety and health standards was zero, as exposed by Nauch et al (2006). Eighteen (11.5%) said many children suffer injuries and mining related sickness and 12(7.7%) said that children working in the mines are exposed to radioactive minerals. In all, the most predominant risk was the exposure of children to injuries, dust, noise and collapse of tunnels (leading to death) as shown in Table 4.21

Table 4.21: Types of risks/accidents experienced by children in mine site.

Accidents	Number of respondents	Percentage
Injuries and sicknesses	18	11.5
Exposure to radioactive minerals	12	7.7
Exposure to poisonous chemicals	22	14.1
Exposure to risks, dust and noise, collapse of tunnels	104	66.7
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Due to the countless number of dangers or accidents which working children may encounter, they are bound to suffer different kinds of ailments. Regarding the type of ailments which children face as a result of their working in the mining sites, 126 (80.8%) said that, working children in the mines suffer from skin diseases, respiratory diseases, and body pains due the arduous work of digging or pounding of grits of stones, the use of adult-sized tools, the transport of rock, gravel or sand, and the lack of protective equipment, such as boots, nose guide, goggles and helmets as posited by Thorson(2012) and IHRC(2009). 17(10.9%) said that children suffer stomach aches, eyesight problem and STDs resulting from the sexual harassments the females go through. Thirteen (8.3%) also said that children suffer from malaria, typhoid and foot infections which arises from the numerous mosquito bites, the eating and the drinking of contaminated food and water respectively as shown in table 4.22. This imply that the most commonest ailments

suffered by children working in the mines in the study area are skin and respiratory diseases, body pains which have serious detrimental effects on the cognitive and psychomotor developments of school children.

Table 4.22: Type of illness children suffer from in mine sites

Type of illness	Number of respondents	Percentage
Skin and respiratory diseases, Body pains	126	80.8
Stomach, eyesight problems and STDs	17	10.9
Malaria, Typhoid and Foot infection	13	8.3
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Out of the 156 respondents who were asked of where children who are working in the mines go for treatment any time they are ill, 91(58.3%) pointed out that the commonest and the nearest health facility is the clinic at Gyedu where many of the children go for treatment in the case of any injury or sickness. Thirty-nine (25.0%) said that children go to the district hospital at Hwediem for treatment when they are sick or get injured. Sixteen (10.3%) affirmed that some children due to the demanding nature of their work and partly due to the remote nature of these mines resort to self- medication by boiling and drinking some concocted herbs or buying some drugs from the drug stores or drug sellers in the mine sites and 10(6.4%) said children visit various community health posts. It is evident that the nearest and commonest health facility in the study area where greater percentage of working children visit in times of sicknesses or injuries is the clinic as shown in table. 4.23.

Table 4.23 Places children go for health care

Place of treatment	Number of respondents	Percentage
District hospital	39	25.0
Clinic	91	58.3
Health post	10	6.4
Self- medication	16	10.3
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

4.6. Effects of mining on school enrolment, performance and drop out

Out of the 156 respondents whose views were sought regarding the effects of mining activities on school enrolment, 64(41.0%) of the respondents were of the view that enrolment has rather increased due to the notion that the formal mining company does not employ the indigenous people because they are not educated so parents are compelled to send their children to school so as to get better employment opportunities in the near future. Fifty-five (37.2%) said that enrolment has decreased drastically in the face of the vigorous mining activities especially the artisanal small-scale mining. Thirty-two(20.5%) said that mining activity in the area does not have any significant effect on school enrolment since many of the children who go the mine site do that after school, on weekends, during vacations and on holidays. It is therefore evident that mining activities in the study area has caused an increase in enrolment in the study area as shown in table. 4.24

Table 4.24: Effects of mining on school enrolment

Effect	Number of respondents	Percentage
Increased	64	41.0
Decreased	58	37.2
Neutral (No significant effect)	32	20.5
No response	2	1.3
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

Table 4.25: shows that primary school enrolment in the study area increased from 2,269 in 2006/2007 academic year to 2,991 in 2009/2010 but dropped to 2,778 in 2010/ 2011 and shot up again to 3,042 in the 2011/2012 academic year. The general enrolment in the Junior High schools did not show any much departure from that of the primary school. Enrolment in the JHS also showed a progressive increase from 1,933 in 2006/2007 to 2,625 in 2011/2012 as shown in (figure 4.1). These figures showed relatively small percentage (about 5%) increase in enrolment in both primary schools and JHS over the period from 2006/2007 to 2011/2012. This is not encouraging taking into consideration educational policies like the Free Compulsory Universal Basic Education (fCUBE), School Feeding Programme (SFP), Free School Uniform Policy (FSUP) and other educational programmes running in the district with the aim of increasing enrolment. On

the whole and in almost all the classes or year groups, enrolment of boys was way above the enrolment of girls. The figures somewhat agree with the responses from the field work that, the vigorous mining activities going on in the study area has not had any negative effects on enrolments.

Table 4.25: School enrolment figures (Absolute Numbers) in the Upper Primary and JHS from 2006/2007 - 2011/2012 academic years.

Class	Academic Year											
	2006/07		2007/08		2008/09		2009/10		2010/11		2011/12	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Primary 4	452	395	506	446	587	479	547	496	486	451	562	513
Primary 5	377	350	434	389	488	446	556	445	453	458	495	500
Primary 6	387	308	416	352	413	405	486	461	502	428	538	470
Total	**1216**	**1053**	**1356**	**1187**	**1488**	**1330**	**1589**	**1402**	**1441**	**1337**	**1595**	**1483**
Sub –Total	**2269**		**2543**		**2818**		**2991**		**2778**		**3042**	
JHS1	364	358	359	336	343	332	400	374	407	398	491	450
JHS2	325	308	368	317	362	325	357	312	372	349	512	405
JHS3	328	250	300	258	344	255	361	275	330	350	365	325
Total	**1017**	**916**	**1027**	**911**	**1049**	**912**	**1118**	**961**	**1109**	**1097**	**1368**	**1180**
Sub –Total	**1933**		**1938**		**1961**		**2101**		**2323**		**2625**	

Source: District Education Office, Asutifi

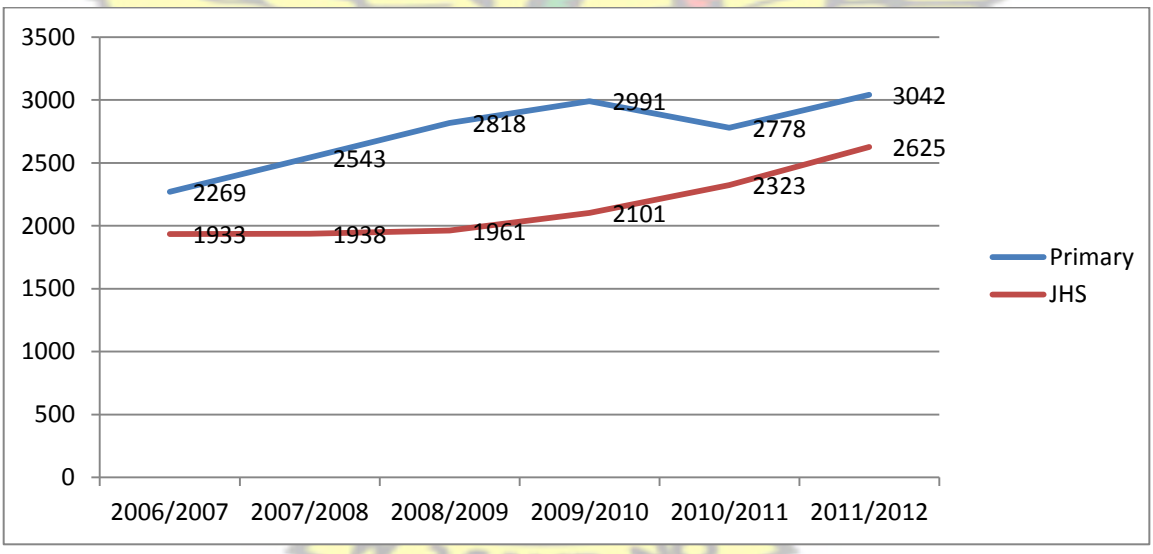


Figure 4.1. Enrolment in the Upper Primary and JHS from 2006/2007-2011/2012 academic years

Source: Author's construct, June 2014

Table 4.26 shows views of respondents on the effects of mining on dropout in schools in the study area. Out of 156 respondents, 110(70.5%) said that dropout and absenteeism

among school children had increased especially in the catchment communities where active mining activities are taking place. This greater percentage oflow school retention is created due to the fact that the rigorous work done by children interfered with education, in that, school attendance is foregone in favour of work, or learning is inefficient, either because the children are not allowed to spend time doing their homework or because they are unable to pay proper attention in school because of fatigue. Gibbons et al (2003) and Heady (2003) accept this situation as the cause of the higher propensity of repetition and dropout in schools. Twenty-eight(18.0%) respondents said that mining did not have any significant effect on dropout, 18(11.5%) said dropout had decreased in the face of active mining activities due to the intrinsic motivation parents have obtained from the young educated workers employed in the formal mining company. However, one of the teachers added to the answered questionnaire that "….. *Many students are attracted to the mine sites by the quick money they would get so they absent themselves from school many times. This affects their performance both in the internal exam and the B.E.C.E. They drop out into full time mining after school" – Head teacher, Gyedu L/A JHS.* In Kwakyekrom D/A basic school one student had this to say on the effects of mining on dropout *"I am supposed to be in JHS3 by now but because of "galamsey" I am still in JHS1. It made me to drop out for 2 whole years."* In all, it implied that the mining activities in the area had caused high absenteeism, repetition and its eventual dropout as most of the respondents agree.

Table 4.26: Respondents' Views on the Effects of Mining on Drop out

Effect	Number of respondents	Percentage
Increased	110	70.5
Decreased	18	11.5
Neutral(No significant effect)	28	18
Total	156	100

Source: Author's Field Survey, June, 2014

Due to the problem of assessing data which draws a clean line of distinction between children who enroll in schools, those who actually dropout of school and those who had transfers to other schools, the dropout analysis was made from the enrolment figures obtained from the district education office.

Considering the dropout rate in the study area, the trend analysis under which a cohort was traced from the upper primary level to the end at the JHS level was used. Table 4.27

shows that the 2011/2012 year group of students in the JHS started primary-one in the year 2003/2004 and by 2005/2006 they were in primary-three. The enrolment over the years decreased from primary- three with 474 boys to 402 girls in 2005/2006 as children progressed to the next class. After four years from primary three (thus up to Primary six), 13% of boys dropped out of school while a decreasing rate of only 1% girls dropped out of school. This was caused by the increase in enrolment of girls from 309 in 2007/2008 to 405 in 2008/2009. On the average, up to 7% of the students dropped out of school by the time they reached primary six.

As children made upward mobility on the educational ladder to the JHS, the trend of dropout increased for both boys and girls. Within a period of three years thus from JHS 1 in 2009/2010 to JHS 3 in 2011/2012 dropout rose up to 23% among boys and 19% among girls. Although the dropout figures for boys (23%) is higher than that of girls (19%), the dropout rate for girls increased much in the JHS as compared to when they were in primary six. By tracing the cohort, children who entered Primary three in 2005/2006 with a total enrolment of 876 had a depreciated enrolment to 690 with a drop out figure of 186 showing 23% dropout rate for boys, 19% dropout rate for girls and an overall dropout rate of 21% by the time they got to JHS 3 in 2011/2012 as shown in Figure 4.2. In all, the year which recorded the highest dropout rate was 2010/2011 when children entered JHS 2 (53 dropouts).

Table 4.27: Trend analysis of enrolment and dropout for the 2011/2012 Batch of JHS 3 from 2005

Year	Class	Enrolment			Dropout			Dropout Rate (%)		
		Boys	Girls	**Total**	Boys	Girls	**Total**	Boys	Girls	**Total**
2005/06	Primary 3	474	402	**876**						
2006/07	Primary 4	452	395	**847**	22	7	**29**	5	2	**4**
2007/08	Primary 5	434	389	**823**	18	6	**24**	8	3	**6**
2008/09	Primary 6	413	405	**818**	21	-16	**5**	13	1	**7**
Sub-total	**Primary 4-6**				**61**	**-3**	**58**			
2009/10	JHS1	400	374	**774**	13	31	**44**	16	7	**12**
2010/11	JHS2	372	349	**721**	28	25	**53**	21	13	**17**
2011/12	JHS3	365	325	**690**	7	24	**31**	23	19	**21**
Sub-total	**JHS1-3**				**48**	**80**	**128**	**23**	**19**	**21**

Source: District Education Office, Asutifi

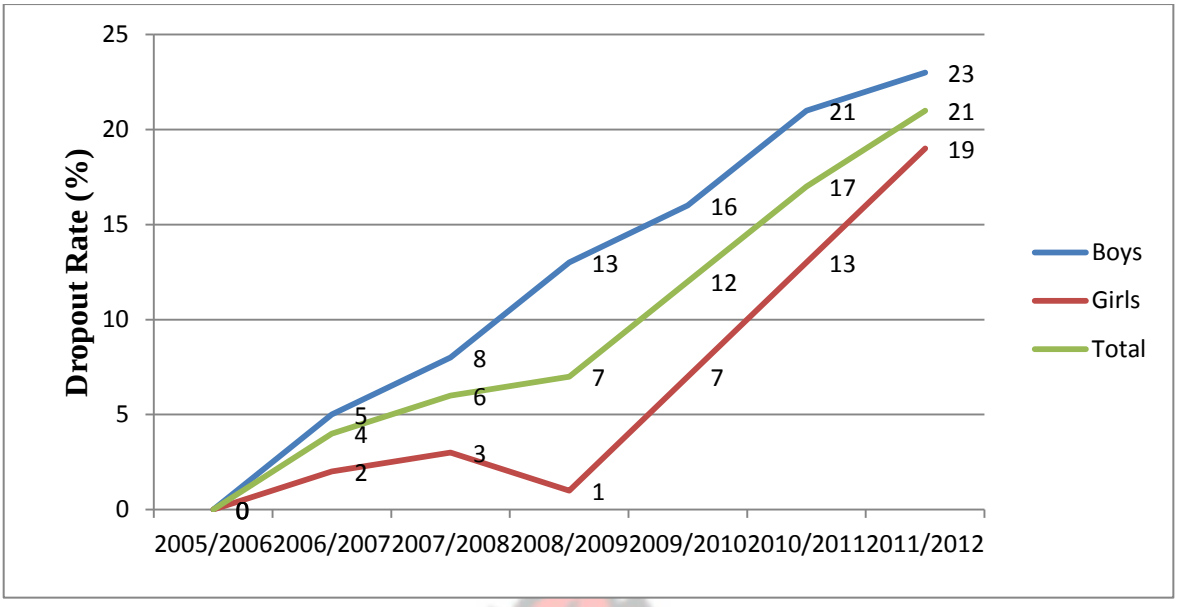


Figure 4.2. Trend Analysis of Dropout for the 2011/2012 Batch of JHS 3 from 2005

Source: Author's construct, June 2014

Table 4.28: shows respondents' views on the effects of mining on children's performance in school. One hundred and one (64.8%) respondents said that performance had decreased due to the fierce competition which exists between children's work, school attendance and proficiency thus the work of children had an inverse relationship with performance or proficiency. Thirty (19.2%) respondents stood on a neutral ground that children's involvement in mining activities have not in any way affected their performance and 25(16.0%) respondents said that performance had enhanced partly due to the fact that children are able to buy some basic necessities both in the house and in school to stay soundly in school. In all, 64.8% of respondents said that performance in school in the study area is decreasing in the face of active mining activities which may in the long run reduce the lifetime earnings as posits by ILO (2006), in Feigben (2010).

Table 4.28: Respondents' views on the effects of mining on performance

Effect	Number of respondents	Percentage
Increased	25	16.0
Decreased	101	64.8
Neutral(No significant effect)	30	19.2
Total	156	100

Source: Author's Field Survey, June, 2014

4.7. General views on the effects of mining on children's education and solutions

4.7.1. The projects /programmes of District Assembly for the withdrawal and stoppage of children from mining sites.

Out of 156 respondents who were questioned on what the District Assembly was doing to help remove children from mining sites, 87(55.8%) said that the district assembly had not done anything about this phenomenon. Twenty-six(16.7%) respondents said that the assembly at different times organized educational durbars or campaigns and other sensitization programmes where talks and workshops were done to show children the effects of mining activities on children's educational achievements. Twenty-four(15.4%) respondents said the District Assembly has made strict bye-laws to be enforced to penalize any child of school-going age who is found in the mine site. Thirteen(8.3%) said educational materials, logistics and school infrastructure has been provided to various schools from the Government of Ghana - GETFUND, HIPC funds, Capitation Grant, the MP's common fund, District Assembly Common Fund to promote teaching and learning and 6(3.8%) of the respondents said that meetings are held intermittently between the District Assembly and other stakeholders like the paramountcy and the G.E.S to find ways of addressing the issue as shown in table 4.29. By implication, many people in the study area see the District Assembly to be seemingly unconcerned about the problem of children going into mining.

Table 4.29: The projects /programmes of District Assembly for the withdrawal and stoppage of children form mining sites.

Project /programme	Number of respondents	Percentage
Done nothing	87	55.8
Campaign and sensitization on effects of child mining	26	16.7
Making of by-laws against school children going into mining	24	15.4
Provision of school logistics and school infrastructure	13	8.3
Hold meetings with other stakeholders of education	6	3.8
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

4.7.2 Projects /programmes done by the District Education service to solve the problem of children going into mining.

Out of 156 respondents who were questioned on what the District Education Office was doing to help remove children from mining sites, 72(46.2%) out of 156 respondents said that the District Education Office had provided educational materials, logistics and school infrastructure to various schools to promote teaching and learning. Twenty-seven(17.3%) said the District Education Office at different times organized educational durbars or campaigns and other sensitization programmes where talks and seminars were done to show children the effects of mining activities on children's educational achievements, 22(14.1%) said that meetings were held intermittently between the G.E.S and other stakeholders like the paramountcy and the District Assembly to find ways of addressing the issue. Twenty-two(14.1%) said the District Education Office has made strict bye-laws to be enforced to penalize any child of school-going age who is found in the mine site., while 13(8.3%) of the respondents said that the Education Service has not done anything about this phenomenon. In all about 91.7% of the people in the area agree that the G.E.S office has done a great deal to withdraw children from the mine sites as shown in table 4.30.

Table 4.30 Projects /programmes from the District Education service to solve the problem of children going into mining

Project/ Programme	Number of respondents	Percentage
Done nothing	13	8.3
Campaign and sensitization on effects of child mining	27	17.3
Making of by-laws against school children going into mining	22	14.1
Provision of school logistics and school infrastructure	72	46.2
Hold meetings with other stakeholders of education	22	14.1
Total	156	100

Source: Author's Field Survey, June, 2014

This is what one of the Head Teachers had to say concerning how he helped to withdraw a student who dropped out of school into the "galamsey" site. *"I went to the site and picked him on my motor-bike and took him to the administrative premises of NGGL where I asked him to watch keenly all that was going on and after that, I brought him to the school. I later asked him what he observed and this was what the boy said* ***"I observed that, all the workers especially the 'big men in big cars' were perceived to be***

educated"*. After this time, the boy has decided to move from being a ghetto boy in the mines to study and become like those men he saw".*

4.7.3Projects / programmes which are done by the Formal Mining Company for the withdrawal of children from small-scale mining.

When asked of the responsibility of the formal mining company in helping to remove school children from the small-scale mining, 61(39.1%) respondents said that scholarships have been provided through the Newmont Ahafo Development Foundation (NADeF). The foundation had sponsored many students from the basic level through their high school level to the tertiary level. This landmark corporate social responsibility of the Newmont Mining Company has positively impacted the lives of brilliant-but-needy students who hitherto would have ended up being dropouts at the mining sites. In all 151(96.8%) respondents said the Newmont Company has provided many classroom blocks, modern ICT laboratories, rechargeable lamps, scholarships and other learning materials that had made teaching and learning attractive and had kept children in the schools thereby reducing the influx of children into the mine sites .Pupils in seven basic schools at Kenyasi No.1 and Ntotroso in the Asutifi District now have free access to fully furnished ICT centers in their schools, through the Newmont Ahafo Development Foundation (NADeF) which provided each of the schools with the required infrastructure, twenty computers and their accessories as well as furniture for the ICT Centers at a cost of Gh.¢470,000.00. The beneficiary schools were the Presbyterian, Methodist, Anglican and Roman Catholic basic schools at Kenyasi No.1 as well as Kwakyekrom D/A Basic, Roman Catholic Basic and Methodist Basic schools at Ntotroso. The provision of ICT in basic schools is in line with government's efforts at promoting the study of ICT in schools, especially at the basic level of education. (NADeF, 2012). Figures 2.1-2.2 show educational support projects done by NADeF in the study area.

Only 5(3.7%) respondents had not seen anything done by the formal mining company to support education in the study area as shown in table 4.31. This implies that many people admit the fact that, despite the negative effects of mining on education in the Asutifi District, the Newmont Ghana Gold Company had committed itself to the positive means of withdrawing children from the mines and keeping them in the classroom.

Table 4.31: Projects undertaken by the Formal Mining Sector for Education

Project/ Programme	Number of respondents	Percentage
Done nothing	5	3.2
Built school infrastructure	22	14.1
ICT Labs and materials	22	14.1
Provision of scholarships	61	39.1
Provision of infrastructure, ICT Lab and scholarships	24	15.4
Provision of scholarships and ICT Labs	22	14.1
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

4.7.4 General Views on the Effects of Mining on Education

When respondents were asked about their perception on whether the advent of mining in the study area has helped children's education, 80(51%) out of 156 respondents said mining activities in the area had not helped education giving the reasons that , mining had brought about absenteeism, dropout and low performance among school children. They further indicated that mining had taken agricultural farmlands which are the major means of livelihood in the area and it has brought about high cost of living. About 76(48.7%) respondents said that the mining activities had helped education and they gave reasons that Newmont Ghana Gold Limited has provided scholarships, teaching and learning materials, school buildings, ICT laboratories and skill training as shown in table 4.32.

Table 4.32: Respondents' views on whether the advent of mining in the area has helped education

Perception	Number of respondents	Percentage
Mining has helped education	76	48.7
Mining has not helped education	80	51.3
Total	**156**	**100**

Source: Author's Field Survey, June, 2014

The next chapter provides a summary of research findings and recommendations that seek to minimize the problem of child labour in mining sites in the study area.

Figures 4.3-4.6: Educational support projects from NADeF

Figure 4.3 Six Classroom Blocks at Kenyasi No2

Figure 4.4 Scholarship Beneficiaries

Figure 4.5 Six Classroom Blocks at Ntotroso

Figure 4.6 Six Classroom Block at Wamahinso

CHAPTER FIVE
SUMMARY OF MAJOR FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.0 Introduction

This study primarily aims to provide empirical evidence on the effects of mining activities on children's education in the Asutifi district in the Brong Ahafo Region of Ghana. This chapter however outlines the summary of major findings from the analysed data and makes policy recommendations on the way forward to ameliorating the challenges education face in the face vigorous mining activities in the study area as identified by the study.

5.1 Summary of Key Findings

The study sought to explore the effects of mining activities on children's education in Ghana. The following issues came to light at the end of the study:

- The main economic activity of the people of the study area is farming and recently trading, which started as a result of the mining activities which have attracted many settlers into the area.
- Farmlands belonging to indigenes face fierce competition with both the large scale and the small scale mining in the area which have pushed many people out of farming and has created unemployment in the area.
- The loss of farmlands to mining companies, coupled with the famers' inability to manage compensations paid to them causes poverty in the area.
- The active mining operation of the Newmont Ghana Gold Limited has attracted a lot of small scale ghettos or mining sites in the area.
- Many school children between the ages of 14-17years and few above 18years mainly boys are attracted to the small scale "galamsey" sites every day.
- Children work on the average between 11-16 hours every day which is a gross departure from the ILO's standard of working hours for children below 18 years.
- Children work in mines unprotected and in dangerous conditions which lead to injuries, accidents and at times death.
- Working children in the small-scale mining sites suffer harassments like beatings due to recurrent fights, verbal abuses of all kinds and many girls suffer sexual abuses like rape. Children are also exposed to accidents, dust and noise, collapse

of tunnels(death), poisonous chemicals and mining related sicknesses like skin and respiratory diseases, body pains, stomach and eyesight problems, malaria, typhoid and other infections which altogether have a great detrimental effects on academic work of children in the area.

- Arduous and bone-breaking jobs like breaking of gold-bearing rocks, digging sand from river beds, performing watchdog activities were predominantly performed by boys while the washing and sieving of sand grits and cooking were done by both boys and girls.
- Parents see schooling and education in the area as the oversight responsibility of the District Assembly or the District Education Directorate so they do not have any sense of urgency or responsibility to tackle the education problem because they think the other stakeholders are not doing anything to arrest the problem. Due to this perception the School Management Committees (SMCs) and Parent-Teachers' Associations (PTAs) which are supposed to be partners in the running of the schools are not functioning well in most schools in the area.
- There are no specific working strategies or programmes with effective monitoring systems put in place by the district assembly and the district education office to fight the problem of child labour in mining though the officials admitted the existence of this problem in the district.
- The NGGL working on the premise of the old local adage that *'he that brought the sugarcane brought the flies'* has as her corporate social responsibility instituted scholarship packages for students, built descent classrooms, modern computer laboratories and provided many teacher and learning materials to the schools in the study area through the education scheme. This is aimed at helping to withdraw students who would have ended up in the mine sites due to the lack of any of the above-mentioned provisions.
- School enrolment has increased in the catchment communities over the years with the general enrolment of boys being higher than girls in the face of vigorous mining activities. Absenteeism and dropout have progressively increased most especially among working children with a dropout rate of about 21%.
- High absenteeism among working children coupled with the tedious and tiresome work done by children has brought about detrimental effects on both the internal and the final performance of students in the area.

5.2. Recommendations

The recommendations of this study are made based on the components of the major findings. The major findings indicate the challenges education face in the study area which requires policy recommendations that would help to address the problems. Key issues that must be addressed include the local economy which has been created as a result of the mining activities in the study area creating poverty situation. In this regard the following recommendations are made to address the inadequacies identified in the findings.

5.2.1 Improving the local economy

- Considering the hardships coupled with the poverty situations created by mining operations in the study area, the local people should be empowered economically to sustain them and to help them send their children to school since education is considered as a means and an end in itself in the building of a better human capital in the future. Since active mining has taken away the small productive agricultural lands of farmers and compensations paid to them were inadequate or mismanaged, the local economic atmosphere is making it hard to provide for the basic needs let alone providing for their children's education. To improve upon this situation, the government, NGOs, NGGL and other corporate bodies like banks should provide parents the opportunities for initiating income generating activities. They should create the impulse to micro-enterprises and income generating alternatives like production of mushrooms, pig farming, snail farming, grass-cutter farming, vegetable gardening and petty trading for parents especially those whose children are working in mines. This can be done through the granting of loans, micro credit schemes, skills training seminars and funding.

5.2.2. Increasing access, quality and relevance of education

- Formal education is seen as a means of eliminating child labour in mining and other mining related works which attract school children. To be able to use education as a tool, access, quality and relevance must be the control agents. In terms of access, the District Assembly, District Education Office, NGGL, NGOs and the local authorities should ensure the enforcement of educational policies like the Free Compulsory Universal Basic Education (fCUBE), School Feeding Programme (SFP) and other policies which make education attractive and accessible to all and sundry. Access also includes the provision of educational

infrastructure and learning materials like decent classrooms, books, chairs, mono or dual desks on regular basis.

- On quality education, teachers should be well remunerated and monitored to give out their best in the teaching and learning process. More scholarship packages should be introduced to brilliant-but-needy students to encourage hard work to reach the target of gaining scholarships.
- For children who have dropped out of school or entered mining early and for that matter lack formal education, a non-formal education or a mobile teaching systems sent near the mine sites is recommended. Collaborative efforts among parents, local administrators and schools are required to re-enroll or integrate such children into the mainstream education system.
- There must be the promotion of vocational and technical education as a way by which according to Imoro (2009), the informal apprenticeship system could be integrated into the formal educational system to strengthen the vocational components of the (JHS) system because it has been relegated to the background by the quest to get to the tertiary institutions through the SHS. Skills acquired by children through technical and vocational training would equip them to start their own businesses after school or get employed after completing technical school or even the tertiary education. This would help children who are technically oriented or vocationally gifted not to dropout but be retained in school.
- As part of the awareness creation process, parents should be given functional education through the formation of functional education teams and facilitators which would move round towns and villages to create awareness on the detrimental effect of children's work in mining on their education now and on their capital accumulation in the future. This functional education would aim to brighten the socio-cultural perception of parents to formal education and its importance both now and in the future.
- Law enforcement should be strengthened to enroll children at school-going age in compulsory basic education. A significant percentage of the school dropouts in rural areas can be found working in informal gold mining.
- Child labour in mining is in almost all cases, a worst form of child labour because of the extent and severity of the hazards and the risks of death, injury and disease. Government, the local authorities and education authorities should legislate to

include mining and mining related activities on their legally-binding, national hazardous child labour lists; thereby making them forbidden activities for children and rendering a recompense punishment to offended children and parents.

5.2.3. Promoting all-inclusive responsibility

- The impulse to a local development processes with the participation of various actors and stakeholders must be triggered. This can be done through the development of interest groups and grass-root organizations such as the PTA, the SMC, teachers and other grass-root task forces. This organization process would help to improve the social cohesion in the mining communities and establish a feeling that if all hands get on deck, the prevention and withdrawal of children is possible and a change attainable.

5.3. Conclusion

This study unveils the complex relationship between the mining activities taking place in the catchment communities in the Asutifi District and the effects it has brought on education in terms of enrolment, dropout or retention and performance.

Many children in Africa are estimated to work full- or part-time, receiving meager pay or no pay at all. Many of the activities children are involved in are hazardous and harmful economic activities such as working in mines. The situation where the works are even not seen as hazardous, many working children do not have access to education or drop out of school due to the fiercest competition children face between school and work. Some of the children who have access to education do combine work and school to gain income which helps them to continue their schooling. Where children are exposed to poor school environments and harsh conditions in school, some children may opt to work than go to school. This has a high propensity of negatively affecting school retention, completion rate and performance which eventually become detrimental to human capital development and capital formation.

It is in this light that the research tried to review existing literature to ascertain the push and the pull factors which cause the influx of children into mining sites, the age nets of working children, the work arrangements and payments, the dangers, risks, accidents and abuses children suffer in the process of work execution and the projects, programmes

and policies put in place to prevent or withdraw children from working into the classroom.

Due to the contemporary nature of the phenomenon under study the case study method was used to carry out the research. Purposive, snowball and simple random sampling methods were used in the selection of the institutions, students and teachers respectively for interviews. Both primary and secondary sources of data were analysed to obtain the major findings of the study. Prominent among the key findings are that, the operationalization of mining in the area has caused poverty due to the fact that compensations paid to owners agricultural land by mining companies are mismanaged; school enrolment and dropout have increased in the study area over the years while performance has reduced.

The recommendations made in this study hinge on the fact that the problem of child labour in mining is complex and multi-faceted which require working national and local policies, uncompromising commitment on the part of all stakeholders and on resourceful investments in the local economy and in education.

REFERENCES

Adarkwa, K. K. (2014). Planning Surveys and research Methodology, PL 613. Lecture Notes for SPRING, Mphil and PhD. Students. KNUST-Kumasi (Unpublished)

Akabayashi, H. and Psacharopoulos, G. (1999). "The trade-off between child labour and human capital formation: A Tanzanian case study" in *Journal of Development Studies,* (35): 120-140.

Akabzaa, T. (2007). African mining codes, a race to the bottom. African Agenda, 7 (3): 62-63

Ammanor, R. (2009). 'Children abandon school and go into illegal mining', Ghana News Agency Report, accessed from www.asutifi.ghanadictricts.gov.gh, dated-15/03/14.

Anane, (2012).*"Effects of Microfinance Institutions on Small and Medium Scale Enterprises in Rural Ghana: the case of the Jaman North District"* Masters Thesis, KNUST, Ghana.

Aryee, B. N. A. (2012). Contribution of the Minerals and Mining Sector to National Development: Ghana's Experiment. GREAT Insights, Volume 1, Issue 5. Maastricht: ECDPM.

Ayensu, S.E. (1997) The African Legacy of the world's most precious metal, Marshall Edition Development Limited, London

Basu, K. and Van, P.H. (1998). "*The Economics of Child Labor", in* The American Economic Review. 88, (3) : 415.

Baxter, P. and Jack, S. (2008). *"Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers"* McMaster University, West Hamilton, Ontario, Canada, accessed from www.nova.edu/ssss/QR/QR13-4/baxter.pdf, dated - 05/02/14.

Brayan, P. (2008). Large Scale Mining verses Small Scale Mining, accessed from www. articlebase. com/science-articles/largesc.vs.sm-sc-662389.html, dated 13/ 03/ 14

Caldwell, J. C. (1982). Theory of Fertility Decline, Academic Press. New York.

Canagarajah, S. and Coulombe, H. (1997). Child Labor and Schooling in Ghana, World Bank Policy Research Working Paper No. 1844, accessed from http://goo. gl/fDgu6 dated-02/3/2014.

Cardoso, E. and Souza, A. (2004). *The impact of cash transfers on child labour and school attendance in Brazil,* Working Paper No. 407, Nashville, TN, Department of Economics, Vanderbilt University.

Carron, G. and Chau, T.N. (1996). The Quality of Primary Schools in Developing Countries. UNESCO Publishing, Paris.

Crabtree, B.F. and Miller, W.L. (1999). Doing Qualitative Research, 2nd ed, Sage Publications, London, England. pp. 293-312.

Damien, M. (2005).Eliminating Child Labour through Education: The potential for replicating the work of the MV formation in India. Centre for Development Studies University College of Durblin.

De Lang, A. (2007). Deprived Children and Education in Ghana. Amsterdam: IREWOC

Sweeting, E. M. and Muchlisoh, E. (1998). Determinants of Repitition, Dropout, and Transition in Primary and Junior Secondary Schools. Technical Report No. 18a. ministry of Education and Culture, Jakarta, page Vii - Xi

Feigben, J. (2010). *"Child Labour and Children's Education in northern region of Ghana. Case Study of Bunkpurugu-Yunyoo and East Mamprusi Districts"* Graduate Thesis, Kwame Nkrumah University of Science and Technology, Ghana.

Gavin, W.J. (2003). *"Conceptual framework for Child Labour interventions in the Education Sector",* ILO/IPEC Time –Bound Programme Manual for Action Planning Paper IV-2; Australia National University

Ghana Statistical Service (2003) Ghana Child Labour Survey, 2003. Accra: Ghana Statistical Service.

Ghana Statistical Service (2014). Population and housing census (2010) District Analytical Report, Asutifi North District, Accra, Government of Ghana, accessed from www.statsghana.gov.gh, dated-04/02/14

Gibbons, E. D, Huebler, F. and Loaiza, E. (2005).*Child Labour, Education and the Principle of Non- Discrimination*, UNICEF, New York.

Glover, B (2010). NGO bails out children engaged in mining activities, accessed from http://globen.blogspot.com, dated-04/02/14

Guarcello, L., Lyon, S. and Rostati, F. (2008). ‘’Child labour and education for all: an issue Paper’’. *Journal of the History of Childhood and Youth*, 1 (2): 254-266.

Heady, C. (2003) “The effect of child labour on learning achievement’’. World Development 31 (2): 385-398.

Hentschel, T.; Hruschka, F. and Priester, M. (2002). “Global Report on Artisinal and Small-Scale mining”, International institute for Environment and Development (IIED), World Business Council for Sustainable Development(WBCSD). Projekt Consult GmbH. No.70

Human Right Watch Report (2011), “A poisonous Mix, Mercury and Artisinal Gold Mining in Mali”. United States of America ISBN: 1-56432-831-7

ILO (2008) Ghana Child Labour Data: Country Brief. Geneva: ILO.

ILO, (2002).Every Child Counts: New Global Estimates on Child Labour, Geneva.

ILO,(2006)."The end of child labour: Within reach" accessed from http://www.ilo.org/public/english/standard/relm/ilc95/pdf/rep-i-b.pdf, dated 10/11/13.

ILO/IPEC (2006), Child Labour in Gold Mining; The Problem; 4 rout des Morillons, CH-1211, Geneva, accessed from www.ilo.org/ipec/areas/miningandquarrying/more aboutclinmining/lang--en/index.htm, dated-10/11/13.

ILO-IPEC (2005). Final valuation: Program for the prevention and progressive elimination of child labour in small-scale traditional gold mining in South America, Phase II.

Imoro, B. (2009). Dimensions of Basic School Dropouts In Rural Ghana: The Case Of Asutifi District, Journal of Science and Technology, 29, (3): 72-85.

International Human Right Clinic (2009). Digging in the dirt; Child Miners in Sierra Leone Diamond Industries. Harvard Law School, 21-32, accessed from www.hrp.lawhavard.edu, dated-15/03/14.

Little, A. (2010). "Access to Basic Education in Ghana": Policies and Progress. CREATE Pathways to Access Research Monograph No. 42. London: Institute of Education, London.

Liwanga, R. (2013). "Why child mining in Africa Deserves American Attention".www.globalpost.com, dated-04/02/2014

Mensah, D. (2012). ''Illegal Small scale mining affecting education-Asutifi Director of Education''. Ghana News Agency Report.

Miller, R. L. and Brewer, J. D, (2003).*A-Z of Social Research*: SAGE Publication Limited, London.

Ministry of Employment and Social Welfare (2010) Ghana Child Labour Monitoring System, Main Document, pp.10-26, accessed from www.npeclc.gov.gh, dated-13/04/14.

Mwami, J.A., Sanga, A.J. and Nyoni, J. (2002). Child Labour in Mining: A Rapid assessment; International Labour Organisation (ILO), International Programme on the elimination of Child Labour (IPEC), Geneva.

Navch, T., Bolormaa, T.S., Enkhsetseg, B., Khurelmaa, D. and Munkhjargal B. (2006), Informal Mining in Mongolia; A Baseline Survey Report Covering Bornuur and ZaamarSoums, TuvAimag; ILO No1.

Okyere, S. (2012). Re-Examining the Education-Child Labour Nexus: The Case of Child Miners at Kenyasi, Ghana, 6 (1): 1-2.

Phil, H. Heather, H. (2001) The Strength and Limitations of Case Study Research, University of Leeds, UK, accessed from www.education.exeter.ac.uk, dated-02/03/14

Psacharopoulos, G. (1997). "Child labour versus educational attainment: Some evidence from Latin America" in *Journal of Population Economics*, 10(4): 377-386.

Ranis, G.; Stewart, F. and Ramirez, A. (2000). "Does child labour displace schooling? Evidence on behavioural responses to an enrollment subsidy" in *Economic Journal*, 110 (462): 158-175.

Ravallion, M. and Wodon, Q. (2000). "Does Child Labour displace Schooling? Evidence on behavioural responses to an enrolment subsidy", *The Economic Journal*, 110 (462): 158-175.

Ray, R. and Geoffery, L. (2003). Does child labour affect school attendance and school performance? Multi Country Evidence on SIMPOC Data, University of Tasmania, Hobart Australia.

Silva, O. (2013). School retention and child labour prevention programme: Ministry of Labour, Human Services and Social Security, accessed from www.child labourdialogues.org, dated-15/02/2014

Sweeting, E. M. and Muchlisoh, E. (1998). Determinants of Repetition, Dropout and Transition in Primary and Junior Secondary Schools, Technical Report, Ministry of Education and Culture, Jakarta, Indonesia, VII-XI.

TFTU/ILO-IPEC.(1999). Progress report of the child labour programme on the prevention and withdrawal of children from child labour under TAMICO sector. Action Programme, Tanzania, accessed from www.ilo.org/public/portugue, dated- 15/10/13

Thorsen, D. (2012). ''Children in mines and quarries; Evidence from West and Central Africa''. UNICEF Briefing paper No. 4, accessed from www.3.bp.blogspot.com, dated-11/10/13

UNICEF (2007). Child Labour, Education and Policy Options, accessed from www.unicef.org, dated-03/03/14.

Verschuren, P. J. M. (2003). Case study as a research strategy: Some ambiguities and opportunities. *International journal of Social Research Methodology*, 6(2):121-139

Weston, B.H. (2005). Child Labor and Human Rights: Making Children Matter. Lynne Rienner Publishers, Boulder Colorado, accessed from, www.h-net.org dated-23/02/14

World Commission on Environment and Development (WCED), (1987). "From One Earth to One World: An Overview" Oxford University Press, accessed from http://public.wsu.edu/~susdev/WCED87.html, dated-15/10/13.

Yin, R.K. (1994).Case Study Research, Design and Methods, 2nd ed. Newbury Park, Sage Publications, London, England.

Yin, R. K. (2003).Case Study Research, *3rd edn.* Sage Publications, London, England.

APPENDICES

APPENDIX 1: QUESTIONNAIRE FOR WORKING CHILDREN

Good morning/afternoon/evening

My name is Ankutse Bright This study aims to examine **"The effects of mining activities on children's education in Asutifi District**". The questionnaire seeks to gather data for a research work in partial fulfillment for an award of a Master of Science Degree in Development Policy and Planning at the Kwame Nkrumah University of Science and Technology, Kumasi. I would be grateful if you could help complete the questionnaire below to enhance the achievement of the study's objectives. The study is purely for academic purposes and responses will be treated with the highest level of confidentiality.

INSTRUCTION Tick (√) the appropriate option(s) where responses are given and provide your answer in the spaces provided where responses are not given.

A. Socio- demographic profile of children

1. How old are you?

Age:	**6-9**	**10-13**	**14-17**	**18+**
Tick				

2. Sex

Sex	**male**	**Female**
Tick		

3. What religion do you belong?

Religion	**Christianity**	**Islam**	**Traditionalist**	**Others**
Tick				

4. Where do you come from? ☐ Asutifi district, ☐ other, specify……=.

5. Since when have you lived here?

Years stayed	**Less than 1Year**	**1-4years**	**5-9years**	**10 years+**
Tick				

6. How did you know of this site?

How site was known	**Through parents**	**through friends**	**My self**
Tick			

7. How did you get to this site?

Means of transport to mining site	**By car**	**On a motor-bike**	**By foot**
Tick			

B. Causes child labour in mining sites

8. What are the factors or reasons that pushed you and other children to the mining sites?

Factors that push children to mine sites	**Tick(√)**
Poverty: Parent's inability to provide for family needs.	
Inadequate educational facilities providing limited options for upward mobility in school.	

Desire to have economic freedom like other young boys and girls in mining	
To get money to pay for educational needs like books, bags shoes, etc.	
Poor performance in school pushes children out of school into mining.	
Children's houses are located closer to the mines than schools	

9. Whose decisions was it to work? ☐ father ☐ mother ☐ friends ☐My self
10. Have you ever been to school? ☐Yes ☐No
11. Are you presently attending school? ☐Yes ☐No.
12. If yes, in what class are you? ……
13. How many days in a week do you attend school? ☐1-day ☐2-days ☐3-days ☐4-5 days
14. How many days did you absent yourself from school last term to go into mining?.....
15. Does your work in mining related activities interfere with your studies?☐Yes ☐No

C. Work arrangement, work environment and work conditions of working children

16. What activities have you been doing so far? - Define it per day/weak end. …… …… ……
17. Describe your daily schedule and activities done from the time you wake up until you go to sleep.

.....

18. How many children do you work with? ☐ Boys…… ☐ Girls.....
19. Tick appropriately which of the following types of work is done by boys, girls or both in the mine sites?

Type of work	**Boys**	**Girls**	**Both**
Running errands for other workers			
Washing and sieving sand and grits			
Digging sand mud silk from river beds			
Digging sand from underground pits			
Carrying bags of mud to processing plant			
Cooking for workers in the mine site			
Performing watchdogs against external invasion			

20. What is your employment status? ☐ Full time ☐ part time
21. How many hours do you work in a day? ☐1-5 hours ☐6-10hours ☐11-16hours ☐above 17 hours
22. How many hours do you rest/play.....
23. Do you experience harassment and abuses at your working place? ☐Yes ☐ No
24. If yes, what type of harassment and abuse do you experience?

☐Sexual abuse, ☐Beatings, ☐Verbal abuses ☐others, specify…….....

25. What is your relationship with your employer?

☐Based on trust ☐Based on fear ☐ Based on master-servant

D. Work earning and how it is used

26. How are you paid?☐In Cash ☐ In Kind, specify what…….. ☐In Both.
27. If in cash, how much do you receive; daily....., weekly....., monthly.....?
28. How do you spend the money you earn?

Uses of earnings	**Tick(√)**
For buying food	
For buying clothing	
For buying books and paying other fees in school	
For supporting family expenses in the house	
For taking care of younger siblings	

29. Amount sent/given to parents and frequency. .....

E. Occupational Health and Safety, Risks and Abuses on children in mining sites

30. What illness conditions have you suffered in the past six months?

Type of illness	**Tick (√)**
Skin diseases (skin allergy, eczema, etc.)	
Severe respiratory diseases (asthma, tuberculosis, pneumonia, etc.)	
Body aches/pains (head, neck, back, wrist, joints, etc.)	
Stomach illness (vomiting, diarrhea, Dysentery etc.)	
Eye strain/eyesight impairment	
Sexually Transmitted diseases	
Malaria	
Typhoid fever	
Cholera	
Anemia	
Foot fungi or infections	
Others	

31. Where did you go for treatment?

Place of treatment	**Tick (√)**
District hospital	
Clinic	
Health Post	
self medication	
Medicinal herbs	

32. Who paid for your treatment? ☐ Parents ☐ Employer ☐ Myself
33. What risks/accidents do you and other children experience as a result of your works in the mine?

Types of Risk, Dangers/ Accident	**Tick (√)**
Exposure to injuries and sicknesses	
Exposure to radioactive minerals	
Poor ventilation and inadequate lightening	

Exposure to dust and high level of noise	
Exposure to poisonous chemicals like mercury, cyanide and lead.	
Collapse of tunnels that leads to death	

F. Effects of mining on children's education (enrolment, performance and retention)

34. In your own opinion what are the effects of mining activities on children's education in the following areas?

Area of education	Increased	Decreased	Neutral
Enrolment			
Drop out			
Performance			

35. In your own view what programmes/projects have the following stakeholders done to remove school-going children from mining?

Stakeholder	Programme and Projects
District Assembly	
District Education Off.	
Formal mining company	

36. In your own perception has the advent of mining activity in the area helped education in the district?

☐Yes ☐No

37. Give reasons for your answer.

……
……

APPENDIX 2: QUESTIONNAIRES FOR PARENTS,TEACHERS, EDUCATION OFFICERS, DISTRICT ASSEMBLY AND OTHER STAKEHOLDERS.,

Good morning/afternoon/evening Sir/Madam

My name is Ankutse Bright. This study aims to examine **"The effects of mining activities on children's education in Asutifi District**". The questionnaire seeks to gather data for a research work in partial fulfillment for an award of a Master of Science Degree in Development Policy and Planning at the Kwame Nkrumah University of Science and Technology, Kumasi. I would be grateful if you could help complete the questionnaire below to enhance the achievement of the study's objectives. The study is purely for academic purposes and responses will be treated with the highest level of confidentiality.

INSTRUCTION Tick (√) the appropriate option(s) where responses are given and provide your answer in the spaces provided where responses are not given.

A. Socio-demographic profile

1. Gender of respondent. ☐ Male ☐ Female
2. Age of respondent ☐18-22 ☐23-27 ☐28-32 ☐ 33-37 ☐38-42 ☐Above 42
3. Marital status of respondent

   ☐ Single ☐married ☐divorced ☐widowed ☐Separated ☐Others (specify)……
4. Occupation: ☐Teaching ☐Farming ☐Trading ☐Mining ☐Pensioner ☐Others, (specify)

   ……
5. What is your educational qualification? ☐No formal education ☐primary ☐ Junior High school ☐Senior High/Vocational/Technical school ☐Tertiary (Certificate'A', Diploma Degree)☐Others, specify……

B. Socio- economic condition of parents in mining areas

6. What is/are the source(s) of your income? ☐salary/wages ☐pensions ☐farming ☐trading
7. What do you consider as your monthly expenditure?....
8. Apart from your main occupation what other activities give you the income?.....
9. Who are the main sources of household income this area?

   ☐Father ☐ Mother ☐older children ☐younger children
10. Can you tell me how much you spend on the following items per month?

    ☐kerosene/electricity/firewood……. ☐ hospital …….

☐food …… ☐ others (specify)……

☐ Education (fees, feeding etc)…….

11. In your opinion, how has the operationalization of mining in the district affected income levels and employment over time? Respond by ticking the appropriate item(s) which answer the question.

Statement	Tick
Mining operations has led to the loss of productive agricultural lands.	1
The loss of agricultural lands has pushed a lot of active agricultural population out of job.	2
Prices of goods and services have increased hence cost of living is very high.	3
There has been the outbreak of disease since mining became operational.	4
Our water bodies are polluted as a result of mining activities.	5
Our settlements are destroyed as a result of mining activities.	6
Mining has enhanced the income levels of people in the area.	7
Compensations paid to individuals are satisfactory enough to cater for household needs.	8
More indigenes are employed by the formal mining companies.	9
In general, the operationalization of mining activities in the area has adversely affected income levels.	10

12. Do you have any of your children leaving school and going into the mine site? ☐Yes, ☐No
13. If yes, how did he/she know the mine site?☐Follow parents ☐follow friends ☐self

C. Causes of mass drift of children into mining sites

14. In your opinion, what are the factors which push children into mining? Respond to the following items based on your perception by ticking strongly agree (SA), agree (A), uncertain (U), disagree (D) and strongly disagree (SD)

Statement	Tick
Many children drift to the mines because of poverty or parent's inability to provide for family needs.	1
Inadequate educational facilities provide limited options for school – going children to avoid moving into the mines.	2
Some children desire to have economic freedom like other young boys and girls who have gone into mining.	3
Many children money to pay for educational needs like books, bags shoes,	4
Children's houses are located closer to the mines than schools	5
Poor educational performance or examination results push children out of school into mining.	6

15. What other auxiliary mining-related works have attracted children from the class room since mining became operational in the area?

Activity	Tick
Selling of ice water	1
Washing of bowls in chop bars	2
Selling of assorted food and fruits	3
Truck pushing	4
Selling of alcohol and drugs	5
Working as cleaners in hotels and rest houses.	6

D.Work arrangement, work conditions of working children

16. Tick appropriately which of the following types of work is done by boys, girls or both in the mine sites?

Type of work	**Boys**	**Girls**	**Both**
Running errands for other workers	1	2	3
Washing and sieving sand and grits	1	2	3
Digging sand mud silk from river beds	1	2	3
Digging sand from underground pits	1	2	3
Carrying bags of mud to processing plant	1	2	3
Cooking for workers in the mine site	1	2	3
Performing watchdogs against external invasion	1	2	3

17. On what status are children employed?☐Full time ☐Part time
18. How many hours do children work in a day?

    ☐1-5hours ☐6-10hours ☐11-16hours☐17hours+
19. Do working children experience harassment and abuses at the mines?

    ☐Yes, ☐No
20. If yes, what type of harassment and abuse do they experience?

    ☐Sexual abuse, ☐Beatings, ☐Verbal abuses ☐Others, specify…….....

E. Work earning and uses of earning

21. How are children paid?☐In Cash ☐In Kind,☐In both.
22. How do children spend the money they earn?

Uses of earnings	**Tick(√)**
For buying food	1
For buying clothing	2
For buying books and paying other fees in school	3
For supporting family expenses in the house	4
For taking care of younger siblings	5

F. Occupational health and safety, risks and abuses on children in mining sites

23. What illness conditions do children suffer while working in the mines?

Type of illness	Tick (√)
Skin diseases (skin allergy, eczema, etc.)	1
Severe respiratory diseases (asthma, tuberculosis, pneumonia, etc.)	2
Body aches/pains (head, neck, back, wrist, joints, etc.)	3
Stomach illness (vomiting, diarrhea, Dysentery etc.)	4
Eye strain/eyesight impairment	5
Sexually Transmitted diseases	6
Malaria	7
Typhoid fever	8
Cholera	9
Anemia	10
Foot fungi or infections	11
Others	12

24. Where do they go for treatment?

☐District hospital ☐Clinic ☐Health Post ☐self medication

25. What risks/accidents do working children experience as a result of your works in mine?

Types of Risk, Dangers/ Accident	Tick (√)
Exposure to injuries and sicknesses	1
Exposure to radioactive minerals	2
Poor ventilation and inadequate lightening	3
Exposure to dust and high level of noise	4
Exposure to poisonous chemicals like mercury, cyanide and lead.	5
Collapse of tunnels that leads to death	6

G. **General perception on the effects of mining on children's education and solutions**

26. In your own opinion what are the effects of mining activities on children's education in the following areas?

Area of education	Increased	Decreased	Neutral
Enrolment	1	2	3
Drop out	1	2	3
Performance	1	2	3

27. In your own view what programmes/projects have the following stakeholders done to remove school-going children from mining?

Stakeholder	Programme and Projects
District Assembly	
District Education Office	
Formal mining company	

28. In your own perception has the advent of mining activity in the area helped education in the district? ☐Yes ☐No

Give reasons for your answer……