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Swedish University of Agricultural Sciences

**Faculty of Natural Resources and
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Environmental Impact of Mining and the Well-Being of the People in Akwatia: A Case Study in Akwatia Town, Ghana

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Master Thesis, 15HEC, Uppsala 2012

Environmental Communication and Management - Magister (1 year Master) Programme

Department of Urban and Rural Development

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Credits: 15 hec

Level: Advanced A1E

Course title: Practice and Thesis Work in Environmental Communication and Management

Course code: EX0409

Programme/education: Environmental Communication and Management– Magister (1 year master) Programme

Place of publication: Uppsala

Year of publication: 2012

Online publication: <http://stud.epsilon.slu.se>

Key Words: Ghana, Diamonds, Small Scale Mining, Environmental Awareness, Politics and Health

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Abstract

Small scale mining activities started in Ghana more than 100 years ago. Around the eighteen (18) century, a lot of foreign investors engaged themselves in mining activities which resulted in the creation of jobs for the local communities; these positively increased the economic growth of Ghana. Mining activities were therefore seen with its corresponding challenges which has a positive or effect on the growth despite the negative challenges. The reason for the study is to ascertain the environmental impact of mining and the well-being of the people in Akwatia, Ghana. Illegal mining activities increased after the collapse of Ghana Consolidated Diamonds Limited (GCD), this was the company responsible for diamond mining in Ghana. Apart from the mining sector contributing to the economic growth of Ghana, mining activities has its own corresponding challenges such as political, social, and environmental as well as health related issues in Akwatia, in Ghana. The study reveals that the community is aware of the environmental impact created by illegal mining activities.

Based on the arguments of the respondents, it was deduced that there has been loss of agriculture and livelihood as negative impacts of mining, especially illegal mining “galamsey”. The community is aware of the existing situation but there must be a great awakening in terms of education and public involvement, so as to be able to create massive awareness in the community in order to reduce future impact to the environment and on the well-being of the people. Though, the practice have turn out to be a main source of revenue for the general public in Akwatia, particularly the youth, the situation put danger and hazard to the sustainability of the environment on the long run, it will also have an effect on the general public if the mine is closed again in future.

Key words: Ghana, Diamonds, Small Scale Mining, Environmental Awareness, Politics and Health.

ACKNOWLEDGEMENTS

I take this opportunity to appreciate and acknowledge all the people through whose knowledge and support this research has been made feasible. This research would not have been possible without their support, guidance and encouragement of the institution and some personalities. First of all, I would like to express my warmest gratitude and thanks to the Almighty God for his grace and protection during this research work.

Secondly, I also thank my supervisor, Hans P Hansen (Ph. D assistant professor) for his encouragement, support, guidance, suggestions, comments and advice throughout the research. I also thank the lecturers especially Lars Hallgren, Vanessa Coronel, Lotten Westberg, Agneta Setter wall, Emil Sandstorm and other visiting lecturers who have brought me this far during my master program in environmental communication and management.

Exceptional thanks also go to my parents Mr. James Ohene Kwarteng and the late Miss Veronica Arthur for their care and love way through my educational life. Also, I pray to God to richly bless my mum and dad for their encouraging advice.

My next appreciation and thanks goes to Mr. George kwarteng Senior and Idiatsu Lawal for their tremendous support and encouragement throughout my research. The following people also contributed in diverse ways and they deserve my gratitude and appreciation: Efia Ohenewah, Evelyn Incoom, Priscilla Martey, Irene Narh, Gifty Dampare, James Kwesi Dally, William Frimpong, Bernard Kwarteng and Seth Ameyaw Dankwah (who conducted my interview)

I also thank the interviewers and those who were able to answer the questionnaire for their time and willingness to help. Above all, my thanks also go to the opposition groups for their recommendation. Once again thank you.

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CHAPTER ONE

Environmental Impact of Mining and the Well-Being of the People in Akwatia, Ghana.

Introduction

This chapter covers the background information of the case study, the statement of problem, reasons for the research, the aims or objectives of the study, the justification of the research, limitation and delimitation of the study and research methodology. The chapter also contains the definition of terms and the planning of the presentation.

Background of the study

Ghana

The thesis is about small scale mining in Ghana. Ghana is a self-governing country which got her independence on 6th March 1957 after being colonized by the British. Ghana is located in West Africa along the Gulf of Guinea and was previously called Gold Coast because of the availability of gold in the country. It is also rich in other natural resources. The nation Ghana shares borders to the north with Burkina Faso, the east with the Republic of Togo and the west with La Cote D'Ivoire. The nation's population is about twenty million and it covers an area of 238,555 square kilometers (Kaakpena, Y.2004).

According to Yelapaala K and Ali. S H,(2006),Ghana is a rich country as compared to other African countries due to the availability of natural resources like: gold, timber, diamond, bauxite, manganese, oil etc. These have contributed to the nation's source of foreign exchange since Ghana produces these resources on a very large scale. The timber industry accounted for 9.03%, cocoa 22.51% and the mining industry accounted for 38.96% in the year 2000 and all this money was generated from the foreign exchange earnings. The second largest producer of gold in Africa after South Africa is Ghana. There has been a tremendous increase in the mining industry for the past twenty years. The Mining industry has generated about four (4) billion US dollars to the nation as part of the foreign exchange earnings between 1983 and 1998. Small

scale mining has been in existence for the past 2000 years and has also contributed significantly the same as the large scale mining.

The mining industry in Ghana

For about four decades, up to the 1980's no new mine was opened in Ghana due to a number of problems faced by the mining sector investors and potential investors alike, as a result of the economic, financial and institutional framework within which the mining sector operated. This led to the emergence of investors into the country from the year 1985 onwards. The government of Ghana then decided to bring in different laws and measures to regulate the mining activities. Before the implementation of these laws, gold mining activities were not regulated but diamond mining activities were being regulated by the mineral regulation since 1962. The laws were:

- 1) "The Additional Profile Tax Law (PNDCL122:1985),
- 2) The Mineral and Mining Laws (PNDCL 153:1986),
- 3) The Mineral (Royalties) Regulations (LI 1949, 1985 and 1987),
- 4) The Small Scale Mining Law (PNDCL 218:1989) and
- 5) The Precious Marketing Corporation Law (PNDCL 219:1989)" (Kaakpena, Y. 2004)

In order for these laws and policies to regulate the mining industry, the government established the Minerals Commission in 1986 to be in charge of the activities of mining industries in Ghana at both the local and international level. The government also formed an organization called Precious Minerals Marketing Corporation (PMMC) to be the sole buyer and seller of the minerals the small scale mining industries were producing. To add to this, different incentives were reserved for foreign investors with the idea of encouraging the foreign agencies to invest greatly in the mining sector. For example, corporate income tax on the mineral production of private companies in Ghana decreased from 50-55% in 1975 to 45% in 1986 and 35% in 1994. Payment made to the government declined from 6% of the total number of minerals produced in 1975 to 3% in 1987(Kaakpena, Y. 2004).

There are two different forms of mining and these are large scale mining and small scale mining. Large scale mining is composed of a large number of people employed by a mining company. They have one or more large sites where they stay to mine for years (Furniss C, 2005). They normally use scientific and technological method in mining and their mining activities are mostly regulated and the impact on the environment are less. Example of a large scale mining company is the Ghana Consolidated Mining Company (GCD) which was solely responsible for diamond mining in Akwatia.

Communities in which mining is done in Ghana normally have high illiteracy rates, unemployment and poverty. This causes the inhabitants of such communities to engage in small scale mining activities which are legal in Ghana. However, their activities are not monitored by the relevant agencies leading to severe environmental degradation and pollution. Some also engage in illegal mining activities called “galamsey”¹. Due to poverty, they are unable to purchase modern equipment to carry out their mining activities, hence they engage in acts which results in environmental pollution and sometimes loss of lives (Kaakpena, Y. 2004).

Small scale mining also involves small groups of people in a locality. They do not have their own gold sites but move from one place to another in search of mineral sites thinking they are rich in minerals. This type of mining is widely known to have a lot of negative impact on the environment. This type of mining is what had been going on in Akwatia for years and my thesis is focus on this type of mining activity. (Furniss, C. 2005).

Mining has negative impact on the environment and on the well-being of people especially, during its operation. Mining causes direct environmental impact because the vegetation and trees are destroyed which becomes destructive to the environment (Ricardo, and Hersilia, F. 2004). Mining activities are done within a short time but has long lasting consequences. Environmental degradation is caused when mining is carried out in the “forest zones”. It is also believed that mining affects approximately 38% of the earth forest (Ricardo, and Hersilia, F. 2004)

¹According to Kaakpema Y, 2004. “Galamsey” is a term used to describe or call illegal mining activities in Ghana.

During the “prospecting” stage, the entire vegetation is destroyed especially if the mining is carried out in the “forest zones”. This is done when routes are demarcated through the forest in order to gain access to the sample sites to know the availability of minerals on that particular site. The effects depend on the methods used during the stage of “exploitation”. During the “exploitation” stage mining causes deforestation and this does not only affect fauna and flora but also how constantly water will flow from the forest through to the other ecosystems and the cities. Primarily, deforestation in the forest causes a “rapid and fluid runoff of rainwater” escalating flooding during rainy seasons due to the inability of the soil to hold the water (Ricardo, and Hersilia, F. 2004).

In most mining communities “...the degradation of large tracts of land by the large scale surface mines constitute a major threat to agriculture in the communities and their economic survival” (Awudi, 2002: pg. 7), Akabzaa also observed this trend and made a statement that “...the mining companies are annexing vast lands in their operational areas and depriving communities of their chief source of livelihood” (Akabzaa, 2009 cited in pg. 16 of Opoku-Ware, J 2010).² A lot of conflict in communities are as a result of mining and this has resulted in so many social vices such as “prostitution, drug abuse, alcohol abuse, gambling, incest, inadequate housing (there is an influx of immigrant in search of job which makes accommodation very expensive and scarce), youth unemployment, family destabilization (Akabzaa and Dramani, 2001, 43: world rainforest movement, 2004:47 and Gualnam, 2008:2). Most of the mining societies in Ghana react to these social vices through demonstration and strike actions. It can therefore be said that the increasing level of conflict between the mining societies and “chiefs” on one side and the “companies” on other side “echoes” the increasing apprehension about the negative impact on the population as a result of the mining activities³. During mining activities there is the destruction of revered sites leading to loss of land for agricultural purposes. There is also a shift in lifestyle due to the emergence of immigrant in that community. A lot of people are also forced to move out to the cities especially the indigenous people. This is because life in mining communities becomes so expensive and forces the indigenous people to move out from their community. Also, due to the influx of

²Akabzaa and Dramani is the analyst of the impact of mining sector investment in Ghana, a study of the Tarkwa mining region, 2001.

³A chief is a leader or a ruler of a people or community (oxford dictionary, 2005).

different groups of people in such communities there is high level of violence leading to murder, assault, suicide drug and sexual abuse which may lead to loss of lives (Opoku-Ware Jones, 2010).

Air pollution affects the people directly due to the dust generated by mining activities. The health and well-being of the people especially, those living close to where toxic substances are generated is greatly affected. They suffer headache, skin rashes, diarrhea and vomiting, etc. which are signs and symptoms of “mercury poisoning”. Mining also destroys many water bodies making it very difficult for the local people to get clean potable water for drinking, cooking, washing, bathing etc. In mining areas, there is always the tendency for prostitution, sexual abuse and drug addiction which also affects the health status of the people living in the respective communities indirectly. Due to the sexual abuse in those mining communities, there is increased incidence of HIV/AIDs and other Sexually Transmitted Diseases (STDs). There is also evidence of increase infant mortality rate in mining communities. People from both the western world and the third world are grappling with the negative social, environmental and health impact of mining. Those in the south are often delimited by poor environmental, health and safety standards. However mining companies operating in these communities are not putting in any strong or effective measures to comprehensively curtail these problems. “In general, the negative impact of exploration and mining activities accepted as a “necessary evil” in the provision of the world’s increasing eagerness for minerals and metals. While health, safety and environmental concerns are increasingly on international agenda, many view those offences against Indigenous (and other) people as a secondary concern to the economic bottom line” (Whiteman Wail and Mamen Katy, 2002).

What I personally observed during my two year stay in Akwaatia was that, environmental impact of mining and the well-being of the people in Akwatia has been a hydra-headed issue that is difficult to circumvent and there is therefore the need for an urgent change to avoid more negative impact of mining on the environment. Mining activities have caused a lot of people to migrate into the Akwatia town, a situation which has led to a lot of environmental, social and health problems in the community. The GCD has been closed down for some time now and the workers have been laid off without compensations being paid to them. Following their diminutive knowledge in mining, they have engaged themselves in illegal mining

activities “galamsey” in the communities which use to house the activities of the mining company. Now, those top men who were managing the GCD are now selling the companies concessions to the small scale miners and some individuals without monitoring their mining activities. Meanwhile, the government and the opinion leaders in Akwatia are doing little about the situation for fear of losing votes from the electorate. Every government of the day wants to win the parliamentary seat in Akwatia. As a matter of fact, the government and opinion leaders have refused to put in sturdy measures to control these illegal mining activities in the communities for fear of losing the seat in the upcoming 2012 general elections. This has become an albatross hanging on the necks of the entire Akwatia populace since the mining activities has caused a whole lot of environmental problems.

Statement of the problem

Small scale mining activities started more than 100 years ago. Around the eighteen (18) century, a lot of foreign investors engaged themselves in mining activities which resulted in the creation of jobs for the local people including those outside the mining community which has helped in the growth of the country's economy. Again, the implementation of appropriate regulations and policies governing the Mineral Commission of Ghana also encouraged a lot of mining investors into the country. This has also helped in the economic growth of Ghana. Apart from the mining activities providing jobs and contributing to the economic growth of Ghana, it has its corresponding challenges which have negative impact on the environment and the communities at large. Ironically, the illiteracy level in Akwatia is high and nobody seems to be ready in addressing the problem by providing both formal and informal learning process. Living standard in Akwatia is very low making everybody to virtually think about how to afford a three- square meal per day and not as to how to protect the environment. There is no democracy functioning at the local level, making it very difficult for the local people to be involved in the activities in their own community. This makes it very difficult to deal with the problem making it difficult to change the situation. The local people are either aware or unaware of the damage they have caused to the environmental. This has given the local people no option than to engage in illegal mining activities whereas those outside the mining communities

perceive this as unwillingness to adhere to change. People are also dying out of health related diseases due to the illegal mining activities. Due to the above reasons the question I am asking now is, to what extent are the local people in Akwatia aware of the environmental, social, political consequences in small scale mining? Again, it is therefore also notable to look into the people's perspectives about the environmental, social, and the political dimension of the situation.

The research questions

- To what extent are the local people in Akwatia aware of the environmental, social, political consequences in small scale mining?
- What are the people's perspectives about the environmental, social, health and political situation in Akwatia?

Organization of study

The rest of the thesis is organized as follows: Chapter one surveys the historical aspect of the city of Akwatia. The chapter also looks at the environmental impact of mining especially, in the mining communities.

Chapter two presents review of previous literature on environmental impact of mining and the well-being of the people in Akwatia. The review starts with definition, meaning and implications of mining in broader context.

The third Chapter explains the approach used in conducting this research. It focuses on the sample size, how the study should look like and the number of people who responded to the questionnaire. In addition, the chapter throws more light on the method and research tools employed in this study.

In the fourth chapter, Empirical findings and the characteristic feature of the data used are captured.

The fifth and final chapter sums up the various findings made by reframing the original aims of the study and proposing further research to enhance the present body of knowledge on environmental impacts of mining activities.

CHAPTER 2

This chapter comprises of the ideas and principles lay down by various authors and renowned publishers of mining activities. The purpose is to review relevant literature relating to environmental impact of mining and the well-being of the people in Akwatia, Ghana. It is also intended to discuss prime issues that would come out in the study. Hence, the major topics in this aspect of the research are: space for public dialogue which is also known as public participation and environmental awareness which are the key concepts in this thesis.

Involvement and Participation

The government, institutions and agencies that often focus on experts in instituting programs, implementing policies and initiatives have most of the time failed(Poke-Ware, J 2010).This has brought about lots of arguments to find ways and means to bring out policies and programs which affects the poor and those who are really involved in the situation. In this era a lot has been placed on “involvement or participation” which is referred to as the “third sector”, which is the society. Situations affecting or involving a society has to be carried from individual to the societal level where everybody could be involved and allowed to participate in whatever goes on within that particular society. The societal involvement or participation is seen as a way in which “policies”, developmental projects, programs and initiatives could be impacted into the people (Poke-Ware, J 2010).

According to Kleemer (2000,pp .929), “...participatory strategies in all kinds of poverty alleviation programs has been the most effective means to both deliver and sustain benefits to the poor”. These participatory strategies see the communities as entities that would help them in their developmental activities rather than seeing them as passive recipient of development. This is almost the same as the Ostrom’s theory of coproduction and synergy development. For the aim of this thesis, community participation model will be used as developed by Botterill and Fisher. The model focuses on “bottom up” approach which sees the approach as a way used to effectively solve societal problems. It is also believed by Botterill and Fisher that this model can be used in addressing all kinds of societal issues from “...the regional

economic development, family fixing, education and schooling, childcare, health issues and problems, substance abuse, crime control and prevention, biodiversity, natural resource management, and rural and urban revitalization and renewal” (Opoku-Ware, J 2010).

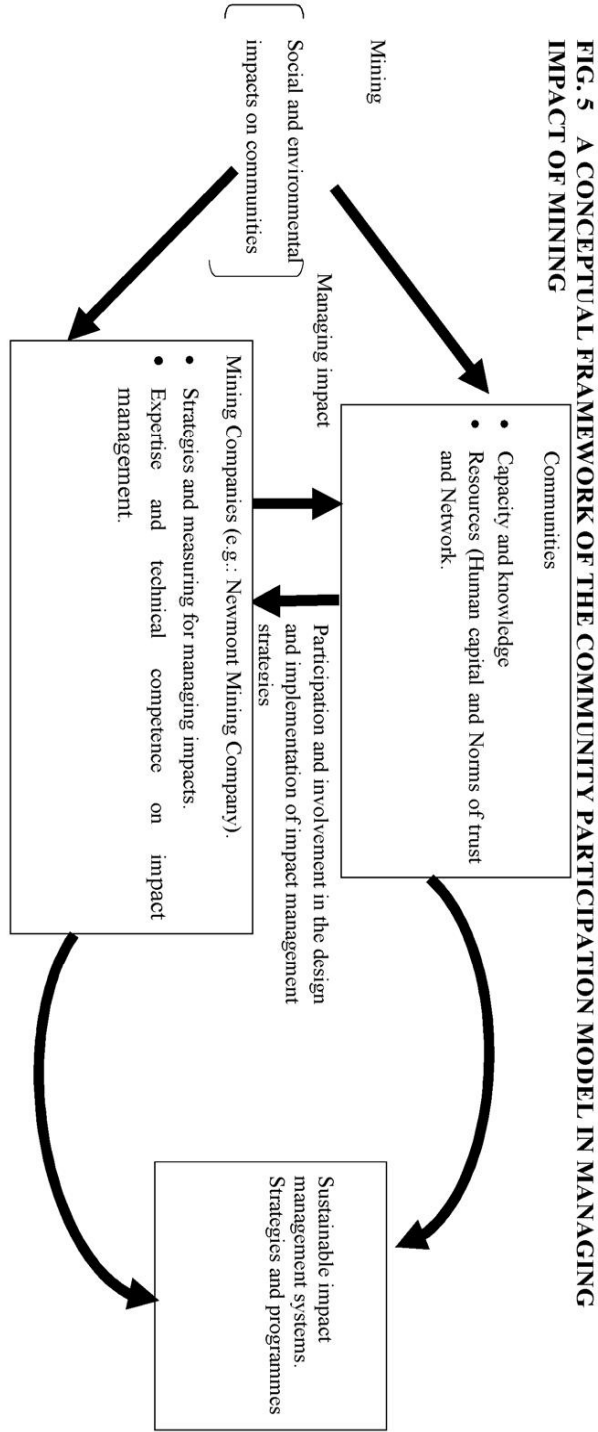
According to Botterill and Fisher (2002 cited in Opoku-Ware, J 2010), community participation is based on the following:

- 1) “Top down approach through which government and other expert have identified and imposed situation have failed in the past to resolve these interactive able problem.
- 2) The relevant community has a better knowledge of the problem and workable solutions in solving the problems.
- 3) Involving the community will mobilize many more human resources than could be marshaled by government and acting alone.
- 4) Participation program will build the capacity of the participators to tackle any future problems on their own and
- 5) Involving the affected population in deciding their future is a good thing in itself and in a more popular policy approach” (cited in Opoku-Ware, J).

According to Boterill and Fisher (2002,5-65), this model has been applied to the Australia Land Care Program, Coast Care, Dune Care and the Fisheries Action Program and many European Commissions and Common Wealth Countries and was successful. Against this background, I would also try to use a part of the model to investigate the situation, especially, communities, capacity and knowledge, human resources (human capital and norms of trust) and network and how its applicability would help in achieving a sustainable future in Akwatia.

I will focus on the model on page 17, especially communities, capacity and knowledge, human resources (human capital and norms of trust) and network. One of the principles of the community participation model is to make sure that the community becomes a participant in their development. One may ask whether these can be feasible. These can work when there is a linkage, communication and involvement from the community, the chief, politicians and GCD. What I observed

during my stay in that community was that, GCD together with the leaders in the communities are not doing their maximum best to educate the community on their rights and thereby shielding GCD despite the impact it has brought into the community. Bringing all actors on board will help to have knowledge about the existing situation, develop some sustainable impact management systems, strategies and programs to reduce the impact. The community will then feel empowered and make sure they adhere to their strategies in order to reduce the environmental impact of mining in their community. The media especially, the radio is an effective medium for letting people know about an existing situation. The media serves as a learning platform for creating awareness to the public. The media plays their roles as a watch dog and advocacy group and therefore have included science and nature etc. to their programs, making it interesting to the general public. Using this medium is very useful because it can reach the people everywhere, especially in their homes, work, institutions and open places. This is also a platform for seeking information.



This model was taken from (Poku-Ware, J 2010 pg. 19)

Involving or allowing the community to participate in developmental projects and policies within their vicinity tends to create awareness to the individuals within that same community.

Environmental Awareness

Everybody is conscious about the increased public awareness concerning environmental related matters; inadequate information about environmental related matters can affect the role to achieve future sustainability for humanity at both local and international level (Talero G, 2004)

Awareness is defined as “knowing something; knowing that something exist and is important; being interested in something. Example, environmental awareness is knowing that looking after the environment is important”. (Oxford dictionary, pg. 88, 2005)

From Cambridge dictionary, awareness is defined as” knowledge that something exist or understanding of a situation or subject at the present time based on information or experience, example environmental awareness has increased dramatically over the past decade”[<http://dictionary.cambridge.org/dictionary/british/awareness>]

From Macmillan dictionary, awareness is defined as “knowledge or understanding of a subject, issue or situation, example there is a general lack of awareness about safety issues” [<http://www.macmillandictionary.com/dictionary/british/awareness>]

My own definition of awareness is that being conversant with or being familiar with an event, a happening or a phenomenon.

Environmental awareness is when the individual, groups or the entire public is able to identify the environmental related matters, ideals and effect they have in connection to financial and societal standard of living. This is an important area for the attainment of our future sustainability. When the communities are made aware of the need to sustain a healthy and useful environment, there is the need for social

involvement. Good media, proper education and organizing campaigns of awareness concerning the need for environmental health are very essential to protect and use natural resources and to arrive at a future sustainability in the community.

Environmental awareness is shaped by “economic, social, professional, religious, ethnic, cultural and educational factors”. The most effective way to share information will always depend on the different types of program and social interaction the focus groups observe. Environmental awareness and applied communities are the main keys to expand and effectively create awareness campaigns to different groups of people. Planned activities can be designed in a viable way to help the different focus groups to acquire wisdom, abilities and behaviors that are expected from human beings in order to take the necessary action to resolve local environmental related matters. When the “government, non-governmental organizations, organizations, private entities or educational entities” are able to come together, there is the means that can lead to good outcome in interacting eco-friendly matters (Talero G, 2004).

“Environmental education (EE) is a cross curriculum topic promoting global awareness, sustainable living and active citizenship. It involves a structured and planned process that seeks the implementation of environmental curriculum at educational institutions at different levels (elementary school, high school, university, graduate and post graduate levels). Cross-cutting subjects that are integrated in a global perspective but that can be learned and applied locally should implement this curriculum” (Talero G, 2004).

Role of media outlet

The media is an effective means for creating environmental awareness through the use of radio, magazines and television among others. Creating environmental awareness is the first step in environmental education. The media sees their activities to be educational so they have included science and nature, drama, music and dance as topic in their programs. This is very useful because it can reach people everywhere especially in their homes, work, institutions and open places. Giving out environmental related matters is very difficult due to the dynamics and how complex our natural systems are. The communities should be assessed again in order to be connected with the new environmental and social realities in the way science has conservatively related with the communities. The societies in this modern world

which is full of science should learn how to converse more productively with program official and teachers. The media can give us good gears to give information that can be used as learning aids, which will help to limit the bridge between scientific and civic awareness in a proper way. Scientist, media personnel and non-governmental organizations play effective role in environmental awareness. Scientists are among the principal people to come out with evidence which brings about environmental impact through the actions of humanity. As a result of disagreement between different groups, they find it very difficult to know how to effectively come out with their detections between themselves and the entire public as a whole. It is now known that through good “communication, professionals, proper information exchange among scientists, communities and non-governmental organizations”, significantly create good awareness concerning environmental matters. This comes about when there are well-organized and supportive communication plans put in place (Talero G, February 2004).

In the deprived and most countryside societies, ownership of radio sets is on a very high scale now. So it could be said that this is of importance to the entire community. Through this, the radio is an important medium to achieve environmental awareness campaign. This will let the communities know that they can live based on the things around them. Environmental awareness in countries normally has worldwide perspectives, but Talero G, was able to come out with “special” focus groups with special problems.⁴A lot of these focus groups are mainly from the villages. Those from these areas are financially down and their illiteracy level is high. People who fall in this category are not interested in environmental related matters but are always concern about how they will survive in this world. Countries that fall under this category are mostly found in the third world. There can be an improvement through both formal and informal education. “Mass media, art and traditional knowledge” are important factors that can help to create awareness in the third world countries. It has been shown through experience that non-governmental organizations, can be a very good agent to create environmental awareness campaigns (Talero G, February 2004).

⁴Talero G is an analyst of Literature Review on Environmental Education and Public Awareness, 2004.

To lift the situation from the individual to the societal level for everyone to be involved, I will focus on the following medium, Radio (FM), Schools and the Public Health Unit in the hospitals. I will therefore focus on the radio and the Public Health Unit as the main medium to reach the entire community. This is because a new radio station had been opened early this year in Akwatia. According to Telero .G, even in the deprived and most isolated communities, radio ownership is high. It is also seen as the perfect way in disseminating information to the public. It is also not expensive. During radio broadcasting, progressive and major change can be made when environmental awareness is being reinforced. The radio is an effective way of creating a “sense of belongingness” in their listeners. “It is very important to create a feeling of connection to our immediate surroundings if we keep in mind that our lives are based on everything that surrounds us” (Talero G, 2004 pg. 7)

The Public Health Units is established in most of the hospitals in Ghana. According to Ghana Medical Journal (2006), some of the aims and objectives of the PHU are“...Health promotion to improve health-seeking behavior and reduce health risk behavior. Disability and death prevention through prompt treatment of the sick and early case/epidemic detection and control Disease prevention through orally administered drugs, vaccines and contraceptives. Increased client and job satisfaction through human care, bottom up decision-making and reward for underserved area service and Moderate affordable service cost through efficient use of resources and risk-sharing prepayment schemes...”
(<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1790832/>).

An interview with Enoch Akuda, a public health officer of St Dominic hospital revealed that apart from the communities embarrassing the activities of the PHU, it has limited human resources which make their activities very difficult.

What I have also observed is that going to school is expensive in Ghana and most of the people especially in Akwatia don't have money to send their children to school. Accessibility to school is sometimes difficult or may be too far from the community. This makes the individual feel reluctant to attend school which increases the number of illiteracy level in Akwatia. Focusing on schools to create awareness will be the third option to radio and Public Health Unit. This is because the number of people of school going age is less in Akwatia.

The radio was used in Botswana to send environmental information to the adult listeners and it was successful. During this process, they targeted the adult “receptors” that are also taking part in activities pertaining to education such as environmental movements. These communication plans involve energetic and led group listening. The only problem in this medium is how to make sure the program reaches the people and how the people are responding to it. Another problem is how to be able to know whether these listeners are learning from the program (Talero G, 2004). Since the radio when used in Botswana was successful, I would also try to use it to investigate the situation in Akwatia.

When analyzing the data, much attention would be given to environmental awareness to the local people concerning the negative environmental impact of mining activities as well as what the people, different stakeholders intend doing to reduce the impact in the coming future.

CHAPTER 3

The chapter offers the guidelines, methods and procedures that I used in the gathering and scrutinizing of the empirical data on the grounds of the study. The first part deals with the methods used in the research in collecting the data, the techniques used in getting all the needed information from the respondents. It also continues to talk about the hindrances or challenges that I went through before the completion of the study.

Methodology

Research Methods, basically refers to the entire process of the study (Creswell, 1994). The method focuses on a systematic investigation to establish facts or come out with solutions that addresses a problem (Burns, 2000; Grinenel, 1993). It is a procedure or thought that collects information on a chosen subject using definite processes or sequence of actions (Leedy, 1989). The research methodology therefore focuses on the process or steps and the kind of research tools and procedures that are needed to obtain the requisite data for a study (Mouton, 2001). The purpose of this project is to find the environmental impact of mining and the well-being of the people in Akwatia. It further seeks to ascertain whether there is any alternative livelihood available for the people. This and many more questions about the state of environmental impacts of mining in Akwatia such as health, standard of living of the people of Akwatia would be asked.

The research techniques

Both qualitative and quantitative methods of study will be used to examine the raised questions. Considering the topographical distance, time frame and the expected scope of the research, thorough interviews through recordings is the most appropriate method to gather experimental material for the research. Questionnaires have been used in addition to the data collection.

“...Qualitative research involves the systematic collection and analysis of more subjective narrative materials using procedures in which there tends to be a minimum of research-imposed control...” (Bagley, C and Walker Lee, 1998). This type of research is conducted to describe and promote understanding of human experiences, example pain, caring, powerlessness, and comfort. Because human

experience is difficult to quantify, that is, assign numerical value, qualitative research seems to be more effective in measuring emotional responses than quantitative research (Bagley, C and Walker Lee, 1998). Two people were interviewed, one from the PHU and the other a “galamsey” operator who lives in Akwatia.

A quantitative research “...seeks to explain causes and makes predictions”(Bagley, C and Walker Lee, 1998). Presumably, there is an existence of authenticity that might be uncovered and used. Against this backdrop, the researcher makes deducible examination of the predicament and therefore examining the diverse thoughts to be relevant, based on either present concept or his or her own analysis of the phenomenon (Bagley, C and Walker Lee, 1998). Fifty (50) people responded for the questionnaire, thirty-three (33) been male and seventeen (17) female. Twenty (20) people from the ages between 18-25years, twenty (20) people form 26-35years and ten (10) people from the ages between 36-50years who are all inhabitants living in Akwatia ,this will help me to understand the real situation on the ground.

The Sample Size and the number of people who responded to the questionnaire

Fifty (50) inhabitants (both workers and non-workers) of Akwatia participated in the study from which data was collected and analyzed. Thus, each will add twenty five (25) samples each. Akwatia would be used as a case study because the literature shows that a minor attention has been given to them. Besides, Akwatia mining also contributes to the growth of the mining industry in Ghana and West Africa. Finally, Akwatia is the easiest way to access information, since the researcher has lived there and comes from Ghana.

Processing

The first questionnaire was for non-workers. The aim of the questionnaires was to find out what the environmental impacts are for the people of Akwatia and whether any of the listed factors arising in the literature review is a factor to them. The second questionnaire focused on Akwatia mining workers. The questionnaire aimed at finding whether factors such as health, dangerous place of working and environmental impacts review in literature are factors to them. It also aims to find out what sustainable measures are in place. The questionnaires would cover both

structured and unstructured questions which mean both proofs and views of residents would be required. To maintain the interest of participants in the study, a short questionnaire form was adopted as suggested by Bell (1995). The questionnaires would be as short as possible. Structured methods are attributing concentrated. Echtner and Ritchie (1999), compels respondents to assess the environmental effects in terms of laid down scales. For instance, which would you consider as environmental impact of mining in Akwatia, health etc.? Unstructured method are another procedures of measurement used in customer behavior research. Unstructured methods use free from report to ascertain customer's view (Boivin1986). According to Echtner and Ritchie (1999), not mentioning the environmental effects of mining at the start of the study affords respondents the opportunity to freely air their opinions on the subject. For example, what are the environmental impacts of mining in Akwatia?

Procedure and Ethics

The research is carried out through open-ended and closed questionnaire. These are planned so as to produce information needed to answer the research questions in order to provide dependability and legitimacy. The efficiency of an investigation depends on how thoroughly inquiries are carried out and it pertinence to what you want to enquire(Burns and Bush, 1998). As a result of that, the survey followed an order with unassuming questions in the beginning, followed by more challenging ones, covering inhabitant's view on environmental impact over structured and unstructured methodologies. Preliminary guidance will be required from my supervisor on the representation and suitability of the questions. Once the questionnaires are ready they will be tested on limited in habitants in Akwatia. This will aid to give content validity and assist the researcher to make needed adjustments. After the data had been gathered, the outcome will be summarizing and evaluated.

Ethical matters are the socio-cultural and psychological concerns, dilemmas and conflicts that need to be considered through the process of the research; and these may comprise of confidentiality, inconspicuousness, and privacy (Neuman 1994; Punch 1998). The researcher will wholly identify himself and background to those involved in the research and the reason of the study will be explained at the

beginning. Ethical concerns were held efficiently by using the ethics of informed consent. Informed consent is made up of four elements, which are capability, to volunteer, to give every information concerning you and understanding.

Limitations

During this research, the thesis faced some challenges or problems which cannot be ignored which in a way has resulted as limitations in reaching the aims and objectives of the thesis.

First and foremost, funds were not available to carry out the thesis. Money to empower the researcher to investigate efficiently in the area of the thesis was not available considering flight fare to and fro, transportation and printing cost.

My absence in the thesis area had really been a limitation since I have lived there for almost three years and I know where to get information regarding the thesis.

Again, getting information about the answered questionnaire also took me weeks eating into the time of the thesis. It would therefore have been better for me to be there to carry out the research myself.

Most of the employers were also feeling reluctant to share their thought concerning the thesis. The directors of both GCD and St Dominic Hospital were at a board meeting in Accra the very week the interview was conducted, so information from credible sources were not enough. Some of the employees in GCD and St Dominic Hospital were also reluctant to disclose information.

Lastly, the split of my initial group project also took some of the time for the completion of the thesis, as I had to reorganize myself before starting all over again. Notwithstanding all this hindrances I was able to complete the thesis successfully.

CHAPTER FOUR

Presentation of data and analysis

The chapter seeks to present the empirical data and results from Akwatia as given by the respondents. The results are presented in relation to the aims and objectives of the research and the research questions. The chapter is also divided into four parts: environmental impact of mining, health impact of mining, medium to create awareness and the political dimension about the situation. Before digging into each part, there is always the introduction which deals with the data gathered and the methods used in gathering the data. The same part also assesses and analyses the different perspectives on the topic and also from the gathered data from both qualitative and quantitative methods used.

Brief history of Akwatia

Akwatia is a diamond mining town in Ghana, West Africa. It is found in the Eastern region, west of the Atewa Range in the Birim River Basin. It has a population of 23,000 people. Being a parliamentary constituency in the Kwaebibirem district, it is a major seat of contention between the two major rival political parties in the country, namely the ruling National Democratic Congress (NDC) and the opposition New Patriotic Party (NPP). It is endowed with a senior high school, a technical institute, a 320-bed hospital facility and a local football club. It was once a very vibrant diamond mining town with the operations being managed by the State owned, Ghana Consolidated Diamonds Company (GCD) .Available at (<http://en.wikipedia.org/wiki/Akwatia>)

The sex of the respondents and the structure of population indicated below was obtained from a variety of information and it's then seen as one rather than sorting out those with facts and those without facts on environmental impact of mining. Two people were interviewed, one from the PHU and the other a "galamsey" operator who lives in Akwatia. Fifty (50) people responded to the questionnaire, thirty-three (33) been male and seventeen (17) female. Twenty (20) people from the ages between 18-25years, twenty (20) people form 26-35years and ten (10) people from the ages

between 36-50years who are all indigenous people living in Akwatia. This will then help me to understand the real situation on the ground.

The structure of population and sex of the respondents

YEARS	18-25	26-35	36-50	TOTAL NUMBER OF RESPONDENTS
	20	20	10	50
SEX	MASCULINE	FEMININE		
	33	17		50
NUMBER OF EMPLOYEES	31	19		50

Environmental impact of mining in Akwatia

The respondents were asked two questions from here, do you experience any environmental impact from mining especially “galamsey” and if yes, which type of pollution is mostly experienced? This question was asked to find out from the community whether they are aware of the environmental impact caused by the mining activities in the community. After taking the questionnaires round to a total number of fifty (50) respondents in Akwatia and its environs, 41(82%) were said to have experienced some environmental impact from mining, especially “galamsey” while 9(18%) people answered no, meaning they were not aware of any environmental impact caused by mining activity in that community. Moreover, (13) (26%) people saw the environmental impact as being air pollution and 24 (28%) as land pollution.

On the issue of whether they see deforestation as a challenge due to mining activities, thirty-three people 33 (66%) said yes while 17(34%) answered no. When asked about the steps they were taking to stop deforestation, 6 (12%) people

answered that nothing was been done about the situation, 17 (34%) said forestation measures should be considered and lands should covered after use, 9 (18%) said forest reservation must be observed, 6 (12%) said surface mining should be abolished while 6 (12%) said deforestation laws must be strictly enforced. However, 6 (12%) did not know what to say.

Mining in Akwatia has affected the natural resources especially land, rivers, plants and the entire forest in the Akwatia community. Superficial mining is what is been used in Akwatia for both GCD and the “galamsey” mining activities. The company’s striving to survive will be their key concern other than thinking about environmental threats. Akwatia is a farming community and since most of the lands belonging to the local people have been cleared and taken away from them, they have all engaged in illegal mining activities. Due to the collapse of the company, those formally employed in the company have also joined the “galamsey” activities since the company refused to pay them their compensations. Agricultural activities are of no use in Akwatia now and this has led to tremendous increase in the prices of goods and services. Food, accommodation etc. are so expensive in the mining communities in Ghana which makes life very difficult for those who don’t have the energy to engage in illegal mining activities. This makes life very expensive and difficult for the local people especially those without job. There is also no land to farm and for those who are refusing to engage in “galamsey” activities are now “swimming” in poverty. The land degradation and deforestation by the “galamsey” mining activities have decrease the growth of biodiversity and since the local people are involved in using the bark of trees and leaves for medicine, it is also reducing the availability of plants used for medicinal purposes which creates employment to some of the local people. A lot of stagnant water has been left uncovered in the areas where the mining are done. This is so large to the extent that it has created some kind of man-made lake. Mining is now done close to streams or brooks which can affect the quality of the streams affecting the flow of groundwater. This has increased the deposits in the streams during flood. Flooding is now a major problem in the Eastern region of Ghana. This has been attributed to the increase illegal mining activities in the area. The groundwater is now affected making it difficult for people to use the pipe borne water or the borehole. They now prefer the use of sachet water (sachet water is distilled drinking water, packaged in small bags of about 300ml in Ghana and very cheap as

well) to that of what they use to take. This has been attributed to the mining activities in the region and everyone is calling for the banning of small scale mining activities including “galamsey”.

Yelpaala, K. (2004), stated that in 1991, Ghana adopted a national environmental policy to make sure that our environment is protected during the exploitation of various resources. The Minerals Commission also came out with guidelines mandating environmental impact assessments for activities of mining in the country three years after the adoption of the national environmental policy. The implementations of these have done nothing good to the various mining communities in Ghana.

www.myjoyonline.com and Ghanaweb.com also reported on the 23rd September, 2011 at 8:00pm that “...About one hundred illegal miners including some foreigners have been arrested in a nationwide operation to clamp down on “galamsey” activities.⁵ The operation being undertaken by the Forestry Commission and National Security is costing over GHS70, 000.⁶ Excavators, generators and other equipment belonging to the illegal miners have been seized and burnt. Chief Executive Officer of the Forestry Commission, Samuel Afari-Dartey told Joy News the suspects will be prosecuted. He said the suspects were arrested in Tarkwa and the Atiwa Forest Reserve, adding there will be a third of such arrest in another area. Afari-Dartey said the action will be replicated nationwide especially in areas where “galamsey” operation is endemic”.

(<http://edition.myjoyonline.com/pages/news/201109/73392.php>)

A new wind is now blowing in Ghana since the flood occurred to eradicate the illegal mining activities. This is what we also have to sit down to investigate as to how this could be done and we also hope it is not going to be a nine -day wonder. The forestry departments are carrying out these activities because of increase deforestation and degradation in the mining communities.

⁵www.myjoyonline.com is an internet source and stands tall as far as information dissemination is concerned in Ghana. Its coverage traverse all African borders.it uses its platform to educate its patrons on a wide variety of pertinent issues.

⁶GHS70, 000 is equivalent to 46,230.00pounds.

To sum it all, environmental impact of mining has been a bone of contention for the people in Akwatia and its environs in that since its inception, Akwatia has recorded some negative environmental impacts. After taking the questionnaires round, majority of the respondents in Akwatia and its environs were said to have experienced some negative environmental impact from mining, especially “galamsey”. Moreover, they referred the environmental impact to air pollution and land pollution.

Akwatia is a farming community and since most of the lands belong to the local people have been cleared and taken away from them, they have all engaged in illegal mining activities. Agricultural activities have become useless in Akwatia leading to tremendous increase in the prices of goods and services. Food, accommodation etc. have become expensive which makes life very difficult for those who don't have the energy to engage in illegal mining activities.

The land degradation and deforestation by the “galamsey” mining activities have decrease the growth of biodiversity and since the local people are involved in using the bark of trees and leaves for medicine, it is also reducing the availability of plants used for medicinal purposes which creates employment to some of the local people. A lot of stagnant water has been left uncovered in the areas where the mining are done to the extent that it has created some kind of man-made lake. Mining is now done close to streams or brooks which can affect the quality of the streams affecting the flow of groundwater. This has increased the deposits in the streams during flood.

Health impact of mining in Akwatia

The people were asked about the impact of mining on their health. A lot of people were able to say the sicknesses and the diseases they suffer from are as a result of mining activities. The Health Director at St. Dominic's Hospital who agreed to give me the necessary information about diseases reported to them due to mining activities, was not present the very week the interview took place. A lot of people came out to say that majority of them suffers from malaria since they are unable to cover the pit after mining which serve as a breeding place for mosquitoes which causes malaria. Apart from malaria, people also complained of having cholera,

diarrhea, cold, flu, headache and skin rashes which might also be as a result of the use of certain chemicals during mining which affect their water bodies.

Contamination of the environment is not a major health problem in Akwatia since diamond mining does not involve much chemical use. There is some health related matters as a result of the mining activities. According to the ministry of health in Ghana, 2001, 43% of the patient in the nation suffered from Malaria and 38% normally occurs in the Eastern region of Ghana where Akwatia is located. The mining activities carried out by both GCD and the “galamsey” operators creates large pits which are filled with water during rainy season. When the company was on its toes, these pits use to be filled up after use and they also made sure those pits created by the small scale mining firms and the “galamseys” operators were covered. As a result of the collapse of GCD, the company has neglected its monitoring activities of the small scale mining firms and this has led to the increase “galamsey” in Akwatia .This has created a lot of health hazard in the community. Stagnant water, which serves as a breeding sites for anopheles mosquitoes the vector which causes Malaria in Africa are all over in Akwatia. This has really increased the rate of Malaria in Akwatia and some see it to be normal. Malaria affects more people in Ghana but the mining activities have also helped in the increasing number of cases in that community.

An interview with Enoch Ekuda, a Public Health Officer of St. Dominic’s Hospital, revealed that health hazards of mining especially, “galamsey” has been a major problem for the local government and deemed the topic, “Environmental Impact Of Mining and The Well-being of the People in Akwatia” as appropriate and relevant. He revealed that pits dug by “galamsey” operators are often left uncovered posing dangers to the public especially when it rains. “People have broken their legs out of these unscrupulous acts”, he intimated. He added that water bodies have been polluted by “galamsey” operators creating a big challenge for the water company in the provision of clean portable, causing increase in waterborne diseases like Bilharzias among others. Again, the community believes that due to the influx of immigrants there has been an increase rate of teenage pregnancy, sexually transmitted diseases, assault and other respiratory tract infections since most of the youth die from contracting one of the above mentioned diseases. This was revealed by Mr. Ekuda who works in the Public Health Unit of St. Dominic’s Hospital, Akwatia. HIV /AIDS are also killing a lot of people in the Eastern region of Ghana, where

Akwatia is found. HIV/AIDS was first discovered in the eastern region of Ghana and it is the region having the highest prevalence in Ghana (USAID, 2010) and Akwatia is located in the eastern region of Ghana.

A study of the effects of mining activities on the health status carried out by Adei, D., Addei, I. and Kwadjosse, 2011, also revealed that there had been an increase number of immigrant into Ntotroso in search of job. This has resulted in pressure on social amenities. Pollution has also affected their drinking water ever since mining started in that community. This has ended up their tradition of taking the rain water sometime back. The community also has an increase prevalence of HIV/AIDs. They believe they contracted this disease from the immigrants. The influx of immigrants has caused overcrowding in that community which also has a negative medical implication. This shows that mining activities creates a lot of impact in the mining communities in Ghana.

To conclude the impact of mining on health, a lot of people lamented that majority of them suffer from malaria since they are unable to cover the pit after mining which serve as a breeding place for mosquitoes which causes malaria. Apart from malaria, people also complained of having cholera, diarrhea, cold, flu, headache and skin rashes which might also be as a result of the use of certain chemicals during mining which affect their water bodies. This has created a lot of health hazard in the communities. Stagnant water, which serves as a breeding sites for anopheles mosquitoes the vector which causes Malaria in Africa are all over in Akwatia. This has really increased the rate of Malaria in Akwatia and some see it to be normal.

Medium to create awareness about the situation

When question was asked about the best source for credible information, 11 (22%) said school, 20 (40%) said radios, 13 (26%) said Public Health Unit (PHU) while 6 (12%) mentioned television. When asked about the most used public media, all the 50 (100%) respondents mentioned radio specifically, Denkyembour FM which is a local radio station in Akwatia.

What I deduced from the model in page 14 from the part I focused communities, capacity and knowledge, human resources (human capital and norms of trust) and network was that , in order to deal with an existing problem one must first accept that

the problem exist and must have knowledge about that existing problem. This will then help to develop strategies and measures to combat the situation. During the interview with the community, the respondents insisted that the media is the most important medium to send and receive information from the general public especially the radio. They believe this is going to serve as a learning platform since majority of them are illiterate and most of their programs are done in the local language for everyone to understand and participate in the topic for discussion. Most of the respondents are aware of the negative impact of mining in their vicinity so it is advisable to use this medium to awake the community about the need to protect the environment. Majority of the respondents said that mobile phone is now cheap in Ghana than before and most of the phones have radio in them. This allows them to listen to the radio at all times. The radio stations are been run in their local language and for that matter, they use that opportunity to know everything that goes on around them. Moreover, radio in Ghana is not expensive to purchase as compare to television and most of the people especially the youth prefer the radio to other medium. Again, the respondents also said that this medium also engage them in a discussion in a sense that, they are allowed to call in to make a contribution on an ongoing topic for discussion. This therefore serves as a learning platform for the community because they feel their voice are heard and also educate other neighbors.

An interview with Mr. Ekuda, a public health officer at St. Dominic's Hospital who also lives in Akwatia on Friday 5th August, 2011 pointed out that the Public Health Unit (PHU) have been engaging in education which has yielded great results especially, in the remote areas because the people embraced the campaign messages. He also stated that "we are trying to deal with the problem by letting the community accept and have knowledge about the existing situation. This will help us to come out with ways and means in dealing with the problem. Again, we will try to involve the various medium of communication, like the radio, schools and the television to embark on massive educational campaigns in the entire community about the existing situation". He promised that his outfit will intensify the campaign to be able to reach out to the majority of the people.

Environmental consciousness in at risk societies in third world countries can be developed together with "formal and non-formal education". "Mass media, art, and traditional knowledge, are element that can greatly contribute to the encouragement

of environmental awareness in developing countries. Experience has shown that NGO's can be very effective in promoting environmental awareness in poor urban or rural based communities. However, experience has also shown it is undesirable and not convenient to by-pass government institutions regardless of how unsuccessful they are" (Talero, G.2004).

Dissemination of information and methods through which they are done is very vital and crucial in mining communities, like Akwatia and its environs. Most of the people were privileged to have heard about mining and its corresponding challenges through an outreach program of the Public Health Unit of the St. Dominic Hospital, schools and through radio. Radio was seen to be the paramount and credible source of getting informed about mining and its allied challenges. Akwatia is fortunate to have a radio station, Denkyembour FM which broadcast its programs in the local language; this to large extent has contributed tremendously to the dissemination of information in creating environmental awareness. The station could also get to the hinterlands so that those who were hard to reach got informed. As such, the community members resorted to relying on the radio station for credible information.

Political dimension

To ascertain whether politicians or authorities are taking the necessary measures to prevent illegal mining activities in Akwatia, majority (62%) of the respondents said 'no' because the politicians or the authorities are aware that "galamsey" is their main source of livelihood and they dare not prevent them from mining or else they will vote against them. 19 (38%) responded 'yes' to the same question. Among the 19 (38%) people who said yes, one explained that politicians do not see the need to prevent them from the illegal mining and one also said they are not responsible for control mining activities in Akwatia.

The illegal mining activities in Akwatia have been in existence for years and nothing had been done about it until the recent floods which invaded "...Fanteakwa, Atiwa, Kwaebibirem (where Akwatia is located), West Akyem and Birim central. Five people died when the flood occurred, so many people have been displaced, and towns cut off, roads damaged and farmlands and houses submerged. Properties worth millions

of Ghana cedi's have been destroyed as a result of the flood..." (Ghana daily graphic, 25th July, 2011).⁷ Many of the people in the community pointed out that the authorities are unaware of the situation but one person who claimed anonymity asserted that, politicians, authorities or opinion leaders including the chiefs are aware of the situation. He pointed out that the issue is of personal interest because the government and the politicians are not putting in strong measures to reduce the impact for fear of losing votes from the electorates. The opinion leaders are also mute about the situation since most of them are appointees from the government and are scared the government will terminate their appointment if they try to unveil the issue. He concluded that the chief who is not supposed to indulge in politics is now doing so because they are refusing to address the problems the mining activities are causing in his communities. As a result of the recent floods in that community, the region and the government are calling the entire nation not to read politics into the matter and that all should come with their knowledge to resolve this issue once and for all

Ghana web reported on the 24th August, 2011 that the vice president of Ghana, on re-opening of the mine made a statement that as part of the government plan to increase "local government and efficiency" in regionalization concept, the government wants to create new district from the Kwaebibirem municipality so that Akwatia will be the capital.⁸ When this is successful it would be named Denkyenbuor District. He also said that the re-opening of the Akwatia mine will give the local people the uninterrupted power to have control over their resources. And again, the mine will be managed by a private company but the government will be there just to see to its effectiveness and development. The Deputy Information Minister, Baba Jamal also concluded by saying the re-opening of the mine is a good idea especially to the local people and also accomplishing part of the campaign promises of the

⁷ Ghana daily graphic, is the most widely read, state owned daily newspaper in Ghana, managed by the graphic communications group limited. it aims at portraying the government of the day in favorable light, detailing, and encouraging national unity and government policies.

⁸ Ghana web is the leading, credible, comprehensive internet resource about the country Ghana. it connects Ghanaians living in and outside Ghana with one another by providing an up-to-date, wide scope of authentic information and news about Ghana, covering politics, business, entertainment, health, religion, sport etc.

ruling government. Even now that the mine has been re-opened and is been managed by a private company with the local people having direct power over their resources, people are still reading politics into the statement the deputy information minister made especially those who are not in support with the ruling government..

To ascertain whether politicians or authorities are taking the necessary measures to prevent illegal mining activities in Akwatia, it was said that the politicians or the authorities are aware that “galamsey” is their main source of livelihood and they dare not prevent them from mining or else they will vote against them. It was also understood that politicians do not see the need to prevent them from the illegal mining in Akwatia.

Personal Observations

I have lived in the study area myself for good three years and I observed the following: All the roads both urban and feeder roads have developed heavy potholes owing to the heavy duty trucks that ply the roads. Some buildings close to the mining sites have developed cracks and some broken down.

I also noticed that rivers have been polluted by “galamsey”, illegal miners making it difficult for the residents to have access to clean potable water and generating high waterborne diseases. Most of the pits dug by illegal miners were not covered serving as a breeding place for mosquitoes and posing danger to the public, especially during rainy seasons when the pits are covered by flood. For instance the St. Dominic’s Hospital in Akwatia is producing its own water because the surrounding rivers are polluted and those taken by the public are always dirty in color.

It was also uncovered that activities of illegal miners have led to frequent flooding even at the slightest downpour destroying people’s homes and crops. Indiscriminate felling of trees has also led to deforestation with nothing been done about it to protect the environment.

Most of the people complained bitterly about the destruction of their farms by illegal miners without paying compensations to them. Some of the youths also said when interviewed that they have been forced to join the illegal miners in their criminal activities for the lack of job opportunities in the areas.

Prostitution and crime cases were also at its peak as a result of lack of businesses to bring more foreigners into the areas and the only small-scale mining company at the place, Ghana Consolidated Diamond (GCD) Limited has apparently collapsed. No job for the local people.

With regards to dissemination of information, the Public Health Unit (PHU) of the St. Dominic's Hospital has championed education on the need to protect the environment to prevent diseases and sicknesses. The only radio station, Denkyembour FM that which was establish early this year is now educating the communities to protect the environment.

Meanwhile, the government is also mute about the situation because both presidential and parliamentary seats keep on swinging every now and then. Politicians and authorities who are responsible for monitoring and regulating activities of mining have neglected their duties and have rather connived with some of the illegal miners in their illegal acts. Some people complain that the politicians have taken monies from the illegal miners to allow them operate to the detriment of the people. And the matter of illegal mining is of no use to everyone in Akwatia.

CHAPTER FIVE

Conclusion

The chapter covers the conclusion, discussions, perspectives, references and appendices.

In the introduction, I mentioned that mining activities started over 100 years ago, especially small scale mining activities. In the previous years, a lot of foreign investors engaged themselves in mining activities which resulted in the creation of jobs for the local people including those outside the mining community which has helped to boost the country's economy. Again, the implementation of appropriate regulations and policies governing the Mineral Commission of Ghana also encouraged a lot of mining investors into the country. This has also helped in the economic growth of Ghana. Apart from the mining activities providing jobs and contributing to the economic growth of Ghana, it has its corresponding challenges which have negative impact on the environment and the communities at large. Ironically, the illiteracy level in Akwatia is high and nobody seems to be ready in addressing the problem by providing both formal and informal learning process. Living standard in Akwatia is very low, which gives an impression to everybody to virtually think about how to afford a three- square meal per day and not as to how to protect the environment. The opinion leaders do not involve the community members in the developmental activities that go on around them. They are unaware of the damage they have caused to the environment due to the high illiteracy level. This has given the local people no option than to engage in illegal mining activities whereas those outside the mining communities perceive this as unwillingness to adhere to change. People are also dying out of health related diseases due to the illegal mining activities. This and many other reasons why I raised the following question in my introduction; to what extent are the local people in Akwatia aware of the environmental, social, political consequences in small scale mining and what are the people's perspectives about the environmental, social, health and political situation in Akwatia?

The study reveals that most of the people in Akwatia are aware of the impact of mining on their community. Due to unemployment situation in the community; their prime aim is to seek for job to earn a living for themselves and for their families. This

has resulted in their lack of interest in environmental related matters but they are always concerned about how to survive. They have therefore resolved to the mindset that humans have to survive and with the perception that environmental protection or concerns should not be the primary concern but rather a secondary concern.

A lot of people lamented on the area of health that majority of them suffer from malaria since they are unable to cover the pit after mining which serve as a breeding place for mosquitoes which causes malaria. Apart from malaria, people also complained of having cholera, diarrhea, cold, flu, headache and skin rashes which might also be as a result of the use of certain chemicals during mining which affect their water bodies. This has created a lot of health hazard in the communities. Stagnant water, which serves as a breeding sites for anopheles mosquitoes the vector which causes Malaria in Africa are all over in Akwatia. This has really increased the rate of Malaria in Akwatia and some see it to be normal.

On the level of awareness of the people in Akwatia on health issues, it was observed that most of the people are aware of some diseases associated with mining. According to them, certain diseases were not predominant until mining was introduced in the communities. For instance, malaria cases were less recorded in Akwatia as well as sexually transmitted diseases (STD's).

They perceived that since people from other regions in the country and expatriates thronged to the area in search of jobs, they come with all sort of health problems which they in turn affect the local people. They further bemoaned inadequate health facilities and difficulty in accessing a health facility due to bad roads as a result of heavy duty trucks that ply's the road.

Dissemination of information and methods through which they are done is very vital and crucial in mining communities, like Akwatia and its environs. Most of the people were privileged to have heard about mining and its corresponding challenges through an outreach program of the Public Health Unit of the St. Dominic Hospital, schools and through radio. Radio was seen to be the paramount and credible source of getting informed about mining and its allied challenges. Akwatia is fortunate to have a radio station, Denkyembour FM which broadcast its programs in the local language; this to large extent has contributed tremendously to the dissemination of information in creating environmental awareness. The station could also get to the hinterlands so

that those who were hard to reach got informed. As such, the community members resorted to relying on the radio station for credible information. And they perceive this to be a positive move in the community.

Many of the people in the communities pointed out that the authorities are aware of the situation but because of their personal interest the politicians are not putting in strong measures to reduce the impact for fear of losing votes from the electorates. The opinion leaders are also mute about the situation since most of them are appointees from the government and are scared the government will terminate their appointment if they try to unveil the issue.

Because of this personal interest and failure to address the issue by politicians, the people have given up hope in them and have resorted to take the law into their own hands and manage it the way that would be best for them. According to them, everyone thinks of what will benefit him/her so they will also continue to do what will enable them to survive.

Finally, Based on the arguments of the respondents, it was deduced that there has been loss of agriculture and livelihood as negative impacts of mining, especially illegal mining “galamsey”. The community is aware of the existing situation but there must be a great awakening in terms of education and public involvement, so as to be able to create massive awareness in the community in order to reduce future impact to the environment and on the well-being of the people. Even though the practice have turn out to be a main source of revenue for the general public in Akwatia particularly the youth, the situation put danger and hazard to the sustainability of the environment and in a long run has an effect on the general public if the mine is closed again in future.

Discussion and Perspectivation

An interview with an illegal miner, Opoku O. K, admitted that illegal mining and mining in general has had some negative impacts on the environment in Akwatia and attributed the rise in “galamsey” activities to the lack of employment in the communities. However, he was quick to disclosed that “galamsey” has provided employment to a large number of people in that, “a pit can employ about forty (40) people so assuming there are ten (10) pits, this means that about 400 people can be employed”. He further hinted that the local gold industry such as goldsmith, receives their raw materials from them “galamsey” operators in order to produce Chains, rings, amongst others which also provides additional employments to the chunk of people .Again, there is no community participation in Akwatia since the opinion leaders do not organize meetings for the community to come out with their grievances. Against this backdrop, he called on the government to put easy measures in the acquisition of licenses since there are cumbersome procedures in getting licenses. The communities perceive that diseases cannot be attributed to the mining activities that go on in Akwatia. They believe there is a shift in lifestyle owing to the emergence of immigrants in the communities which have resulted in an increased social vices, disease and HIV/AIDs.

The issue on the “galamsey” activities has now become a major issue for discussion in the country now due to the number of damage, death, flood it has brought to both the environment and people in Ghana. The government spend huge sums of money in order to relieve affected victims when such an incidence occur and the government, stakeholders and the people are now calling to come together to educate the people on the effect of “galamsey” in our communities, put in strong measures to govern small scale mining activities and to strengthen the various institutions to resolve this issue once and for all. This has become serious debate in the media as at now.

The educational level of the community must be improved and if possible, the government should make education free in the mining communities in Ghana. Education should be in a form of formal or informal.

The government should provide more job opportunities for the people, especially the youth.

Mining should also be mechanized.

The media should include science, nature, etc. as topics in their programs since it reach people everywhere including their homes, workplaces, institutions and open places. Their way of education, especially the radio should also be done in the local language.

Those involved in illegal mining should be arrested and prosecuted to serve as a deterrent to others.

The government should also fund small scale mining and provide flexible terms in the acquisition of licenses.

Regulations and bye laws should be made in regard to mining activities so that it will enjoin companies to do the right things, pits should be covered after use to prevent breeding mosquitoes and posing as danger to the public and the Minerals Commission and the Environmental Protection Agency (EPA) should make sure mining companies comply with mining and environmental laws in the country.

There should be enforcement of laws protecting the environment, encouragement of community members to embark on reforestation exercise, more public education through the media, compensation should be given to the people whose land have been affected as a result of the mining activities, planting more trees to replace the destroyed ones and reclamation of land, intensive monitoring of mining activities by various environmental agencies and GCD(now reopened), small scale mining company in Akwatia should be resourced to work efficiently to reduce the negative impact in the coming years.

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APPENDIX

Open- Ended Questionnaire

Swedish University of Agricultural Sciences (SLU),

Uppsala, Sweden. Department of Urban and Rural Development.

INTRODUCTION

This questionnaire is designed to solicit information on the topic “ environmental impact of mining and the well-being concerning the people in Akwatia” as part of post graduate dissertation work. It is particularly targeted at the local people in Akwatia and their perceptions and impressions about the topic.

TOPIC: CASE STUDY: Environmental impact of mining and the well-being of the people in Akwatia, Ghana.

I would be grateful if you can offer me a truthful answer to the questions posed to help my investigation on the said topic. The information is needed for purely academic purpose and its confidentiality is assured. Thanks in advance for your time and effort.

Please tick and state where necessary

Student: George Kwateng

PERSONAL DATA

Name of respondent.....

Gender ☐ Male

☐ Female

Age

Occupation/profession.....

Organization.....

Address.....

Email.....

MAIN DATA

Do you experience any environmental impact form mining especially “galamsey”?

Yes ☐ No ☐

If yes, which type of mining pollution is mostly experienced?

Air pollution ☐ land pollution ☐ Water pollution ☐

Other, please justify

Do you find that mining activities is sufficient regulated and controlled?

Yes ☐ No ☐

Do you know any law or regulations related to mining activities?

Yes ☐ No ☐

If yes, which law?

.....
.....
.....

Do you think all illegal mining ought to be legalized?

Yes ☐ no ☐

If yes why?

.....
.....
.....
.....

Do you see deforestation as a problem due to mining activities in Akwatia?

Yes ☐ no ☐

If yes what are we doing to stop deforestation?

.....

.....

.....

.....

.....

What kinds of diseases or health problems are caused by these mining activities?

☐ Malaria ☐ fever

Other, please specify

.....

What is the best source for credible information?

Schools ☐ Radio ☐ Public health unit ☐ Television ☐

What is the most used public media?

Is “galamsey” increasing or decreasing in Akwatia?

Yes ☐ no ☐

If yes, why so

.....

.....

.....

.....

.....

Are politician/authorities taking the necessary measures to prevent illegal mining activities in Akwatia?

Yes ☐

No ☐

If no, why not?

.....

.....

.....

.....

.....

In your own words what can you suggest to reduce the environmental impact of mining and the well-being of the people in Akwatia?

.....

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Thank you very much for your assistance

Interview Questions

Question one: what are the major significant impacts that the community is experiencing with the activity of mining in Akwatia? This was asked in order to elicit information from the respondents concerning the major impact of mining in the community.

Question two: how are they coping with the mining and its impacts and what is their unit (Public Health Unit) doing to manage the situation?

Do the opinion leaders involve the community in the decision making in Akwatia community?

Summary/Analysis Made From

Questionnaire

After taking the questionnaires round to a total number of fifty (50) respondents in Akwatia and its environs, 41 of the respondents was said to have experienced some environmental impact from mining, especially “galamsey” while nine (9) people answered no. moreover, thirteen (13) attributed it to air pollution, twenty-four (24) attributed it to water pollution whereas twenty-nine (29) attributed it to land pollution.

When asked whether they find that mining activities in sufficiently regulated and controlled, eleven (11) people answered yes, twenty-eight (28) of them answered no while eight (8) of them did not know either.

When asked whether they know any law or regulation related to mining activities nineteen (19) said yes whilst thirty-one (31) said no. Meanwhile, only one out of the 19 who said yes could quote the exact law related to mining activities, the Small Scale Mining Law (PNDCL 218:1989).

According to thirty-three (33) of the respondents, all illegal mining should be legalized, however seventeen (17) of them did not agree that all illegal mining ought to be legalized. When asked why it should be legalized, eighteen (18) people said so that they can be regulated and forced to comply with regulations governing mining in the country.

Six (6) said so that they can be taxed to generate income, 6 also said so that they can pay compensations to those whose lands have been affected, eight (8) said so that they can provide employment and four (4) said so that they can get assistance from the government. Meanwhile, 8 people could not tell why it ought to be legalized even though they answered yes to the question.

On the issue of whether they see deforestation as a challenge due to mining activities, thirty-three (33) said yes while 17 answered no. when asked about the steps they are taking to stop deforestation, 6 answered that nothing is been done about the situation, 17 said forestation measures should be considered while lands should covered after use, 9 said forest reservation must be observed, 6 said surface mining should be abolished while 6 said deforestation laws must be strictly enforced. Meanwhile, 6 did not know what to say.

On the kind of diseases or health problems caused by mining activities, forty-one (41) said malaria while 7 mentioned fever specifically, typhoid and enteric. Two (2) others also mentioned cholera and diarrhea.

On the issue of the best source for credible information, eleven (11) said school, 20 said radio (FM), 13 said Public Health Unit (PHU) while 6 mentioned television. When asked about the most used public media, all the fifty (50) respondents mentioned radio specifically, Denkyembour FM which is a local radio at Akwatia.

On the issue of whether “galamsey” is decreasing in Akwatia, 29 answered yes while 21 answered no. when asked why it is decreasing in Akwatia, 20 attributed it to the lack of ready employment, 16 said because the price of the commodity has declined on the local market and logistics are also not available, 8 said because members are discouraged in the operation while 6 did not know what to say either.

To ascertain whether politicians or authorities are taking the necessary measures to prevent illegal mining activities in Akwatia, 31 said no while 19 said yes. Among the 19 people who said yes, one explained that politicians do not see the need prevent them and one also said they cannot control mining activities.

Seven (7) said because they are deeply involved in the operation, 6 said because they are interested in what is good for themselves alone, one said because they have

taken money from them while the other three said because politicians are interested in politics and not the welfare of the people.

When the 50 respondents were asked to suggest how the environmental impact of mining can be reduced in Akwatia and the well-being of the people improved:

Five (5) said the educational level of the citizenry must be improved.

Eleven (11) said that the government should provide more job opportunities for the people, especially the youth.

Six (6) said mining should be mechanized.

Six (6) said those involved in illegal mining should be arrested and prosecuted to serve as a deterrent to others.

Five (5) said that the government should fund small-scale mining and provide flexible terms in the acquisition of licenses.

Ten (10) said there should be enforcement of laws protecting the environment, encouragement of community members to embark on re-forestation exercise, more public education, concession should be given to small-scale miners, planting more trees to replace the destroyed ones and reclamation of land, intensive monitoring of mining activities and Ghana Consolidated Diamond Limited (GCD), a small-scale mining company in Akwatia should be resourced to work efficiently

Regulations and bye-laws should be made in regard to mining activities so that it will enjoin companies to do the right things, pits should be covered after use to prevent breeding mosquitoes and posing as danger to the public, and the Mineral Commission and the Environmental Protection Agency (EPA) should make sure mining companies comply with mining and environmental laws in the country.

Below are the pictures depicting the deprive nature of the communities in Akwatia



